

INSIDE: WHAT ISN'T A BUTTE?

Montana Outdoors

MONTANA FISH, WILDLIFE & PARKS | \$3.50

JULY-AUGUST 2019

A FLATHEAD FLING

**State park-ing your way around
the West's largest natural lake**



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DANGER DAMS

VENISON REUBEN SANDWICH

KEEPING WATER IN SPAWNING TRIBUTARIES

HOW THE 2018 FARM BILL HELPS MONTANA WILDLIFE



Montana Outdoors

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Montana Outdoors

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See record-book bighorn rams? Nap on a beach? Leap into crystal-clear water? Whatever your fancy, a visit to Flathead Lake State Park should be on everyone’s list of must-do summer adventures. *By Peggy O’Neill*

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36 Exceeding Expectations While not offering much for Montana’s dispirited CRP fans, the 2018 Farm Bill’s other land and water conservation programs will provide tens of millions of dollars to help farmers, ranchers, wildlife, and public recreational access in the state’s prairie region. *By Catherine Wightman*



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WHERE'S THE FLAT TOP? Haystack Butte west of Augusta rises above a sea of arrowleaf balsamroot. Learn why some rock formations are named buttes and others aren't on page 10. Photo by Cannon Colegrove.

FRONT COVER Kayakers explore the shallows off Finley Point, one of six Flathead Lake State Park units. See page 20 to learn more about the park and the largest natural lake west of the Mississippi River. Photo by Mike Hines.

I was pleased to see in your spectacular May-June issue the article on the upper Clark Fork River ("Rebirth of the Upper Clark Fork"). I have been a resident of Deer Lodge since 1998 and have been employed in monitoring birds along Silver Bow Creek and the Clark Fork River since 2005.

The upper Clark Fork restoration has occupied a large share of my life. I feel that its ultimate success is paramount, not only for the betterment of the fishery and wildlife, but also—and perhaps chiefly—because it instills in the people of this region a strong sense of community pride.

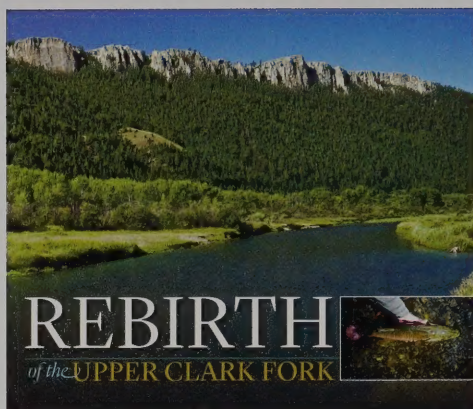
Silver Bow is being fixed, and though not exactly to pre-damage condition, it's at a point now where you can walk along the stream and see many positive results. The cutthroat are back, as are the aquatic invertebrates and birds. Silver Bow is healing, and hopefully the Clark Fork River restoration will also be successful.

Nate Kohler
Deer Lodge

Cautionary tale

Thank you for "Rebirth of the Upper Clark Fork." It's a reminder that preventing the degradation of rivers in the first place would be preferred.

Ilive in Minnesota, where two new copper nickel mines in the Superior National Forest are moving forward, despite their proximity to the Boundary Waters Canoe Area Wilderness, in one case, and Lake Superior headwaters, in the other. As in Butte, the deposits are sulfide ores, which form sulfuric acid waste when brought to the surface. The wastes would require perpetual treatment, threatening these pristine watersheds. Readers who care about wild areas and clean water can educate



W hen the fishing is slow, my grand kids to wonder, are we going away today on the Clark Fork River, where the trout will be swimming in our offerings. I'm disappointed about many things, including the canoe itself.

One thing I ponder is that just being able to fish this river at its heart is a miracle. This is because the Clark Fork of the Colorado, an "offshoot" called the Snake flows beyond measures from the main Colorado, it has been polluted, dammed, dried, and altered. Yet despite decades of environmental damage and around many dams showing signs of imminent threat, this property and potential on this is hard-earned by conservation-minded businesses, talented and enterprising, and industry to repair past damage and learn to consider the Clark Fork as a resource.

PAID A PRICE

Named by the *Geographic Dictionary* for its confluence on the Clark Fork, the Snake River is a tributary of the Snake River.

PAID A PRICE
Named by the Corps of Discovery for its co-leader in 1806, the Clark Fork flows in a series of meanders and rapids before emptying into the Snake River.

The Clark Fork is also one of Montana's most industrial waterways. From its confluence to Native America, this is a busy highway for loggers, coal miners and Clark and Canadian Pacific shippers. The upstream basin is a mecca for fly-fishermen and anglers. Downstream, the Clark Fork supports from its headwaters to its mouth the Pacific States Lumber Co., copper and iron mines, a Clark Forest Industries pulp and paper mill. The forest mill produces chips generated exclusively to be used nearby where they produced railroad ties and beams for western copper mines.

The Atacama's windswept across the valley. Mountains copper would like

NO ONE
CAN MAKE A
NEW RIVER...
— EXCEPT MAYBE
THEY CAN. BY TOM REED

themselves about these projects and contact their elected officials. After all, our nation's wild areas belong to all of us.

Stewart Corn
St. Paul, MN

Picture-perfect places

I noted with interest your article on Fishing Access Sites ("Far More Than Fishing," March-April). I am an artist who loves to visit these areas on the Yellowstone River between Columbus and Absarokee. Fishing access sites are great places to do plein air (outdoor) painting. I love going out to our local FWP sites to grab photos, do a quick sketch, and soak up the sights, smells, and feelings of how great Montana is. Here's a resulting painting I made at Fireman's Point FAS [below].

Barbara Garrett
Billings

Take the time to say thanks

Last year I was fortunate enough to harvest an antelope buck, cow

elk, and whitetail buck on three different ranches enrolled in FWP's Block Management Program. In addition, I received permission from another landowner to park on the adjoining property to retrieve the deer. This past spring, I took the time to get the addresses of each party and send them a handwritten thank-you note, with my name, phone number, and e-mail address. The following are quotes from two

He wrote back to me: ‘We don’t receive thank-you notes for hunting very often—like never.’”

responses I received:

"We don't receive thank-you notes for hunting very often—like never."

“Not too many people these days ever take the time to acknowledge one another in a positive way.”

I understand that one of the biggest deterrents to hunting in Montana (and many other states) today is access to private land. I would like to suggest to my fellow hunters that they take the time to let those who open their lands know that we sincerely appreciate them doing so. They don't have to do it, and a

"thank you" can go a long way in encouraging those landowners to continue.

Jay Danser
Missoula

Williams on target

FWP director Martha Williams's "Our Point of View" commentary in the May-June issue on the balancing acts that fish and wildlife agencies undertake to address contentious conservation and recreational issues was right on target. As a retired fish biologist with over 30 years of experience, I've experienced what it takes to balance recreational opportunities while fulfilling conservation mandates. Using collaborative partnerships to craft sustainable solutions is not easy. It takes time and people of good will to succeed, with an understanding that it's in everyone's best interest to find common ground. But when it works, it's a thing of beauty.

John Whalen
Spokane, WA

Corrections

The damselfly identified as an eastern forktail on page 20 of "Pretty Little Predators" (May-June) is in fact an emerald spreadwing. And the blue dasher also pictured on that page has not been recorded in Montana, as was stated.

Speak your mind

We welcome all your comments, questions, and letters to the editor. We edit letters to meet our needs for accuracy, style, and length. Write to us at Montana Outdoors, P.O. Box 200701, Helena, MT 59620-0701. Or e-mail us at: tdickson@mt.gov.

Venison Pastrami

By David Schmetterling | Preparation time: 17 days | Cooking time: 6 hours



Many game cooks are familiar with venison sausage. But few explore other types of charcuterie, a branch of cooking that produces a wide variety of delicious foods. Charcuterie (*shar-KU-tuh-ree*) was originally devised to preserve meat before refrigeration was invented. Today these meats—including ham, pâté, bacon, and confit—are prepared mainly for their taste. One of my favorites is venison pastrami.

Pastrami is just a corned roast (think corned beef) covered in coriander and pepper and then smoked. “Corning” has nothing to do with grain corn. It refers to a coarse salt—the large grains of which were known as “corns” in medieval Britain—and the brine that preserves the meat.

A conventional beef pastrami is made with a fatty, inexpensive cut such as the plate or brisket (both from the lower front of the cow). Because venison lacks marbled fat, use a lean cut such as a sirloin or other roast from the hindquarter. Venison neck meat, shanks, or shoulder roasts don’t make good pastrami.

The traditional way to use pastrami is for sandwiches, especially the Reuben. Along with a mountain of thinly sliced pastrami, a Reuben includes Swiss cheese, Russian dressing, and drained sauerkraut on dark rye bread. It’s served warm.

Pastrami is slow food. It takes more than two weeks to make, though most of the time the meat sits in your refrigerator. Just like you can’t hurry love, you can’t speed up the curing process of a good pastrami. 🐾

—David Schmetterling coordinates the FWP Fisheries Research Program.

BRINE

- 1 gallon water
- 1 c. sugar
- ½ c. (packed) dark brown sugar
- ¼ c. honey
- 1½ c. kosher salt
- 8 t. Instacure #1 (aka, pink curing salt) or Prague powder #1
- 1 T. pickling spice
- 5–7 cloves of garlic, minced

PASTRAMI

- 2–5 lb. lean venison roast
- 2 T. peppercorn, ground
- 2 T. coriander, ground

DIRECTIONS

In a stock pot large enough to hold the brine and the roast, add a gallon of water and all the brine ingredients. Bring to a boil on the stovetop, stir, then remove from heat.

Cool brine to room temperature. Refrigerate 1 hour to chill.

Submerge roast completely in brine. Place a dinner plate on the roast to keep it submerged.

After 15 days in the refrigerator, remove roast from brine, rinse in cold water, and pat dry. At this point, the roast is “corned.”

Set on a rack in the refrigerator for 2 days to dry and form a pellicle, the thin, tacky film that holds the smoke flavor.

Grind the coriander and peppercorns and roll the roast in the mixture to completely cover.

Place roast in smoker and smoke with a mixture of cherry and hickory for a total of 6 hours: Start at 180° F. for 2 hours, then 190° for 2 hours, and 200° until the internal temperature reaches 150°. (Note: Beef pastrami is “cold smoked,” below 140°, to provide a rich, heavy smoke, but that process makes venison too smoky and overwhelms the other flavors.)

Remove from smoker and allow to cool to room temperature on a rack.

Note: Pastrami doesn’t freeze well, but it keeps in the refrigerator for a couple of weeks. I never have trouble polishing it off before then.

The Reuben’s origins

One story holds that the popular sandwich was invented in the 1920s by Reuben Kulakofsky, a grocer in Omaha, Nebraska.

Another is that Arnold Reuben, owner of the famed

Reuben’s Restaurant and Delicatessen in New York City, created the sandwich around 1915.



Credibility was key to legislative successes

When the 66th Montana Legislature adjourned on April 25 of this year, the future of Montana's state parks, fisheries, game law enforcement, and wildlife looked much brighter. Among the bills the legislature passed (and Governor Bullock later signed into law) were those that:

- ▶ created an additional \$2 million each year to support state parks, trails, and fishing access sites by raising the optional motor vehicle registration fee from \$6 to \$9;
- ▶ added \$1 million in angling license funds to the Fisheries Division's budget (a nearly \$1 million reduction in federal funds in the previous session had forced drastic program cuts statewide);
- ▶ allowed FWP game wardens to do more enforcement work, by revising the allocation of federal funds and state license dollars;
- ▶ provided an additional \$1 million each year for public access; and
- ▶ provided permanent positions for four grizzly bear management specialists.

What accounts for these legislative gains? 1. We increased our fiscal credibility; 2. we built strong partnerships with citizen groups; and 3. we greatly improved our relationships with legislators.

Credibility: Two years ago, during the 2017 legislative session,

citizens, and FWP staff. All these steps have improved the department's fiscal transparency and consistency.

In addition, we've embraced recommendations from a 2018 legislative audit of the FWP Parks Division and from the citizen-led Parks in Focus Commission. The result has been greater credibility with Montanans who care about state parks.

Partnerships: For decades, FWP has been building partnerships with communities, conservation organizations, citizen groups, and others. The value of that commitment was apparent during the recent legislative session. For instance, 42 advocating individuals and

We explained why, for instance, it makes sense for game wardens to spend less time fixing fences on WMAs and more time catching poachers and protecting public safety.

groups, including the Montana Trails Coalition, Montana Wilderness Association, and Montana Trail Vehicle Riders Association, helped the parks and trails funding bill pass both houses of the legislature with strong bipartisan support.

One way we strengthened those partnerships was by regularly meeting with our regional FWP Citizens Advisory Committees throughout 2018 and providing them with clear financial information. Committee members were then able to explain to others the logic behind FWP's budget requests during the 2019 session.

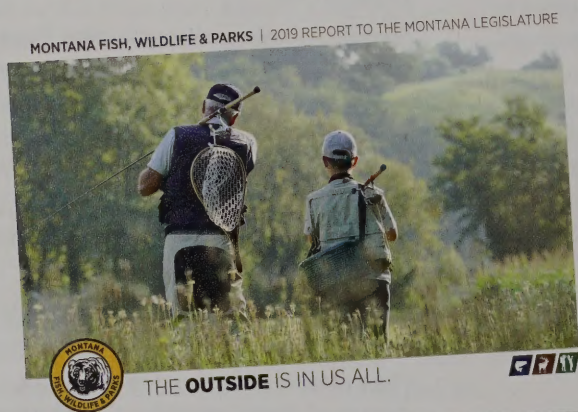
Legislative relationships: To strengthen our relationships with lawmakers, we assigned key staff to answer questions and provide clear information. We helped legislators understand how additional grizzly management specialists can help bears and people coexist. We explained why it makes sense for game wardens to spend less time fixing fences on wildlife management areas and more time catching poachers and protecting public safety. We showed how our budget works and what percentage comes from hunting and fishing license fees and federal excise taxes on shooting and fishing gear.

All this work stems from a new way we're doing business at FWP. Throughout the state, our employees are committed to improving public service—both for traditional outdoor participants like hunters and anglers and the growing number of new ones like kayakers, cyclists, and hikers. A key part of that service is building trust and credibility. That includes asking people what they want from us, listening to what they have to say, and then finding ways to do what they want or explain why that might not be possible.

It also means keeping track of our promises, to legislators and others, and making sure we fulfill them.

At FWP, we want to be worthy of the public's trust. We have plenty more work to do, but I think the results of the 2019 legislative session show we're making headway.

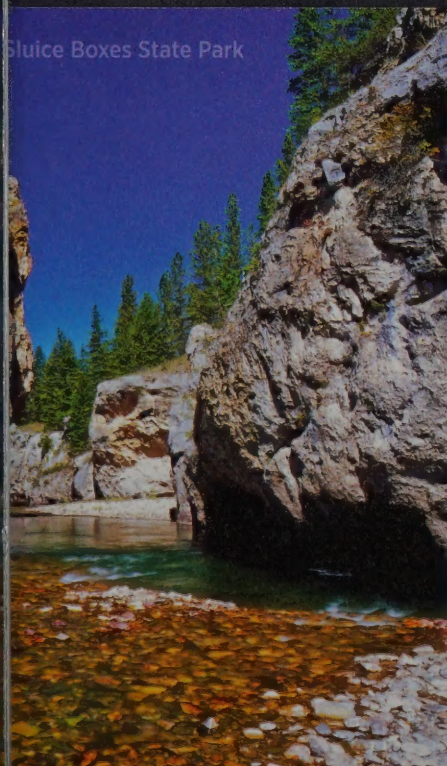
—Martha Williams, Director, Montana Fish, Wildlife & Parks



Providing clear information helped us build credibility at the capitol.

FWP's credibility with lawmakers was low, primarily because the agency lacked essential financial controls and had made opaque and confusing decisions regarding the Parks Division budget.

Since then, we've taken steps to solve those problems. The biggest change was to consolidate all FWP budget functions in a centralized administrative unit. The department's Administration Division was given enhanced fiscal oversight, and its staff regularly meet with all other FWP divisions to ensure they are making decisions based on accurate financial information. We also established a Financial Review Advisory Council composed of legislators,



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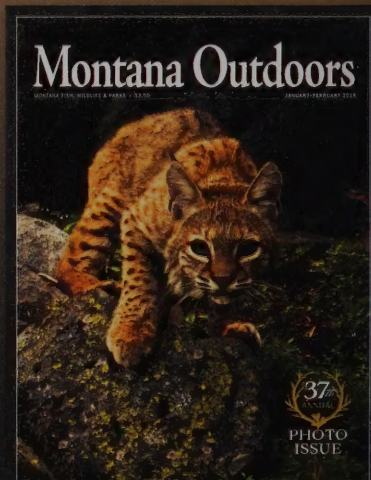
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TOMMY MARTINO

PROSPECTING THE PAST

SARA SCOTT

Heritage Resources Program Manager,
State Parks Division, Missoula

FWP WAS ALWAYS INTERESTED in the historical and archaeological sites in its state parks system. But until I was hired 12 years ago, the agency lacked a Heritage Resources Program led by a qualified expert.

The Montana Antiquities Act requires state agencies to consider how proposed projects would affect historical, archaeological, or paleontological sites. So one of the first things I did after I was hired was work with the State Historic Preservation Office to gather site and inventory reports from every state park and create a GIS mapping database of that information. Now we can look at the maps and see if proposed projects like a new road might damage a known site of historical or archaeological significance.

But what about unknown sites? The only way you can assess those is to get out on the ground with a trowel and see what's there. If we find something like an old building or a Native American

campsite, we assess its significance according to the National Register of Historic Places criteria.

We work hard in state parks to be good stewards. We manage seven National Historic Landmark sites and 10 sites listed in the National Register of Historic Places. This status is a big deal in the worlds of history and archaeology, which is one reason we take the management of these sites very seriously.

The best part of my job is learning the history of our parks from what people left behind. We've documented 1,000-year-old buffalo drive lines at First Peoples Buffalo Jump, a 1,371-year-old piece of basketry at Pictograph Cave State Park, and historic Army and Native American cartridge cases at Rosebud Battlefield. All of us in the FWP Parks Division enjoy sharing these and other cultural and historical gems with communities and visitors across Montana. 🐾





Charles Renfro of Columbia Falls was slowly driving along the pothole-pocked Many Glacier Road in northeastern Glacier National Park last summer when he spotted this fox. "It would trot along for a while and stop, jump into the dew-soaked bushes, then come out soaking wet with a vole or something in its mouth," says Renfro, an avid outdoorsman and nature photographer. "Then it would continue along for a few hundred feet, stop, drop its prey, and dive in to some other bushes and come out with something else. In this photo it's actually carrying two dead voles and a white-crowned sparrow all stuffed into its mouth. It was amazing getting to spend time with that fox, just the two of us, with no other people around. Moments like that are the reason I get outside at sunup." ■



76 Number, in thousands, of anglers, hunters, state parks visitors, and boaters contacted by FWP game wardens in 2017*

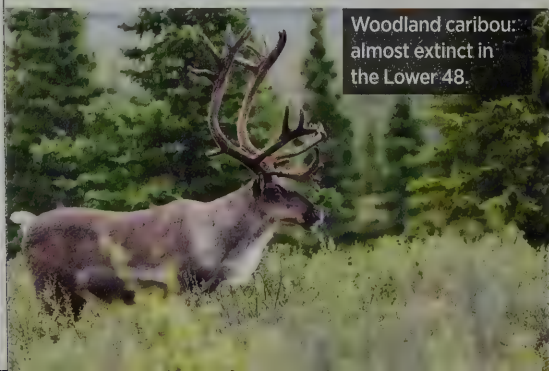
*Most recent available figure

1,000,000 species at risk

Roughly 1 million plant and animal species, including the pallid sturgeon in Montana, are on the verge of extinction, according to a United Nations report released in May. The findings depict “an ominous picture,” says Robert Watson, chair of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, which compiled the assessment.

The landmark report by seven co-authors from universities around the world points to overfishing and warming sea waters as the major contributors to species loss. On land, the primary threat is the rapid destruction of habitat from human population growth. The world’s population has tripled since 1950, and urban areas have doubled in size since 1992. By mid-century, the world’s population of 7.7 billion is expected to approach 9 billion.

The ramifications of species extinction to humans include a collapse of ocean fisheries and severe declines in crop production from the loss of pollinating insects. Habitat destruction that threatens many species also threatens human survival. Between 100 million and 300 million people now face “increased risk of floods and hurricanes because of loss of coastal habitats and protection,” the report says. ■



Woodland caribou: almost extinct in the Lower 48.

WILDLIFE

Improving highways for people and wildlife

Last year, 1 in 57 Montana drivers hit a deer, according to a 2018 State Farm Insurance report. With the second-highest rate of deer-vehicle collisions per capita (West Virginia is in first place), Montana wants to see that number reduced. Now state agencies and concerned citizens are working to make that happen.

Last December, 160 people gathered in Helena to participate in Montana’s first Wildlife and Transportation Summit. The two-day meeting was conducted by FWP, the Montana Department of Transportation (MDT), the Governor’s Office, and Montanans for Safe Wildlife Passage. The meeting was the first step in forming partnerships among agencies, nongovernmental organizations, and local communities.

The summit’s goal was for participants to share information and develop solutions to make the state’s highways safer for people

and more permeable for wildlife.

“Wildlife migrations are especially susceptible to some of the big changes facing conservation as our state population grows, land use changes, and the complicating impacts of a changing climate unfold,” Governor Steve Bullock said in his opening remarks. “There’s a need for us to develop practical solutions that help build resilience to these changes and improve connectivity for wildlife. We need strategies to adapt our existing infrastructure and to plan for the future.”

Summit participants said one important outcome of the meeting was that MDT and FWP agreed to work more closely to address wildlife and transportation issues. This could eventually include what highway professionals call “wildlife accommodation” projects, such as installing over- or underpasses, warning signs, wildlife-exclusion barriers, or wildlife-friendly fencing. ■



Governor Steve Bullock addresses participants of Montana’s first Wildlife and Transportation Summit. The goal of the two-day meeting was to find ways to make the state’s highways safer for people and more permeable for wildlife.



FISHING

Anglers encouraged to catch native trout in western states

The Western Association of Fish and Wildlife Agencies is inviting anglers of all levels to participate in the Western Native Trout Challenge. In addition to earning bragging rights at various levels of achievement, participants will help the association's Western Native Trout Initiative (WNTI) conserve 21 species of native trout.

"The Western Native Trout Challenge highlights the importance of native fish management and demonstrates the sportfishing opportunities provided by recovered native fish populations," says Eileen Ryce, head of FWP's Fisheries Division.

Montana is one of 12 western states participating. Others include Alaska, Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. In addition to state conservation agencies such as FWP, partners include the U.S. Forest Service, Bureau of Land Management, and Trout Unlimited.

Anglers can take part in the challenge by catching native trout using flies or lures in participating states. Participants who catch six trout species across four states will earn an Expert Caster certificate. Those who catch 12 trout species across eight states will be certified as an Advanced Caster. Catching 18 species across all 12 states will earn anglers a Master Caster certification.

To learn which fish to catch and where in each state to find them, visit WesternNativeTroutChallenge.org. The participation fee is \$25 per adult (free for anglers age 17 and under). Ninety-two percent of the fee will go toward native trout conservation and restoration work across the West. ■

Follow the action on: Twitter: [#WesternNativeTrout](https://twitter.com/WesternNativeTrout); Instagram: [@WesternNativeTrout](https://www.instagram.com/WesternNativeTrout); and FaceBook: [/westernnativetrout](https://www.facebook.com/westernnativetrout).



People still trust wildlife agencies

A new study by Colorado State University finds that people still have faith in wildlife agencies such as FWP. Titled "America's Wildlife Values," the study looked state by state and nationwide at what people think about wildlife and the way it is managed. Researchers found that respect and trust for wildlife managers was far greater than for other public employees. Nationwide, 70 percent of survey respondents trusted wildlife agencies such as FWP most or all the time, compared to 43 percent who had faith in state government in general. The federal government trust rate was 22 percent.

The study also describes public attitudes toward wildlife, such as whether it should be used by humans or allowed to coexist with us.

"The study shows that Montanans overwhelmingly believe our agency works hard at obtaining public input, and they also believe that we care about what the public wants," says FWP director Martha Williams. "Those are major factors contributing to the faith they put in us and our decisions." ■



Ain't She a Butte?

By Eric Heidle

“Everything in the way of hill, rock, mountain, or clay-heap is called a butte in Montana.”

—CENTURY ILLUSTRATED MONTHLY MAGAZINE, October 1882

By the time you're atop the windswept, grassy summit of Crown Butte near Simms, about 25 miles southwest of Great Falls, you'll have hiked over any number of obstacles including muddy roads, cow pie mine fields, crumbling cliffs, and maybe a rattlesnake or two. But the view is worth it. On a bluebird day, you can see a hundred air miles north, nearly to the Canada border. To the west, the jagged, snowcapped spine of the Rocky Mountain Front races away toward Alberta. Closer, there's Haystack Butte, a steep volcanic cone rising like a pyramid before the Front; the flat, eroded bench of Shaw Butte to the northeast; and the sharp profile of Birdtail Butte, not a peak at all but a jagged fin of eroded stone that requires ropes to climb.

Which raises the question: So what exactly is a butte?

The word itself is a quirky term native to the West and Montana in particular. After all, the most famous butte in the state isn't a butte at all but a town famous for the opposite, a giant hole in the ground. Over time, Montanans have slapped the word on all manner of hills, mountains, peaks, ridges, and rocky prominences without much regard to what they actually are. And we've done it frequently. More than 600 named buttes exist in Montana.

Despite their modest elevations, these remote summits are among the most dramatic geological formations in the state. Buttes can loom like massive islands above the surrounding sea of prairie. West Butte, at 6,983 feet the high point of the Sweet Grass Hills, would in fact be the highest spot in 35 other states. So it's higher than many mountains, despite being a butte in a chain of hills. Stranger still, a portion of the Sweet Grass Hills' East Butte includes a named "mountain," Mount Royal (6,917 feet), that is lower than West Butte itself.

Picking the right term for a big pile of rock isn't a challenge confined to Montana. A Welsh mountain was recently demoted to a lowly hill. Some keen surveying revealed that Fan y Big, in Wales' Brecon Beacons National Park, was tall enough to be a mountain but

Eric Heidle is a writer and photographer in Great Falls.

JOHN LAMING



CLASSIC Square Butte in Cascade County epitomizes what people think of when envisioning a butte. This and another butte of the same name east of Great Falls were immortalized in several paintings by Charlie Russell.

not quite distinct enough from a neighboring peak to qualify. Geographically, it's a distinction called "prominence," which measures mountains by the differences between their summits and the lowest point between them and the next highest peak. It turns out that, despite the name, Fan y Big is not quite big enough.

But size isn't everything, and in a state whose very name means "mountainous," Montanans might be forgiven for making mountains into molehills. The highest named butte in Montana is 10,542-foot Black Butte, the apex of the Gravelly Range. In terms of elevation, it's a relative monster, higher than any peak in Glacier

above the Going-to-the-Sun Road, no more than a geologic footnote to the mighty peaks around it.

ISOLATED LONERS

Any consensus on buttes seems to involve some combination of shape and location. Mountains and peaks tend to run in chains, while buttes are typically isolated landmarks commanding the ground around them. And they tend to have distinctive shapes, appearing steep-sided and flat-topped, though often only from certain angles. These characteristics are borne out in the language as well—because we know where the word "butte" comes from.

It's a French term originally meaning landmark or target. The word evolved under the usage by early American explorers to indicate a "conspicuous elevation," steep-sided and isolated. John Frémont, writing of his explorations in the American West, noted, "The French word *butte*...is applied to the detached hills and

ridges which rise abruptly, and reach too high to be called hills or ridges, and not high enough to be called mountains." More recently, the *American Heritage Dictionary* defined it this way: "n. Chiefly Western US. A hill that rises abruptly from the surrounding area and has sloping or vertical sides and a flat top."

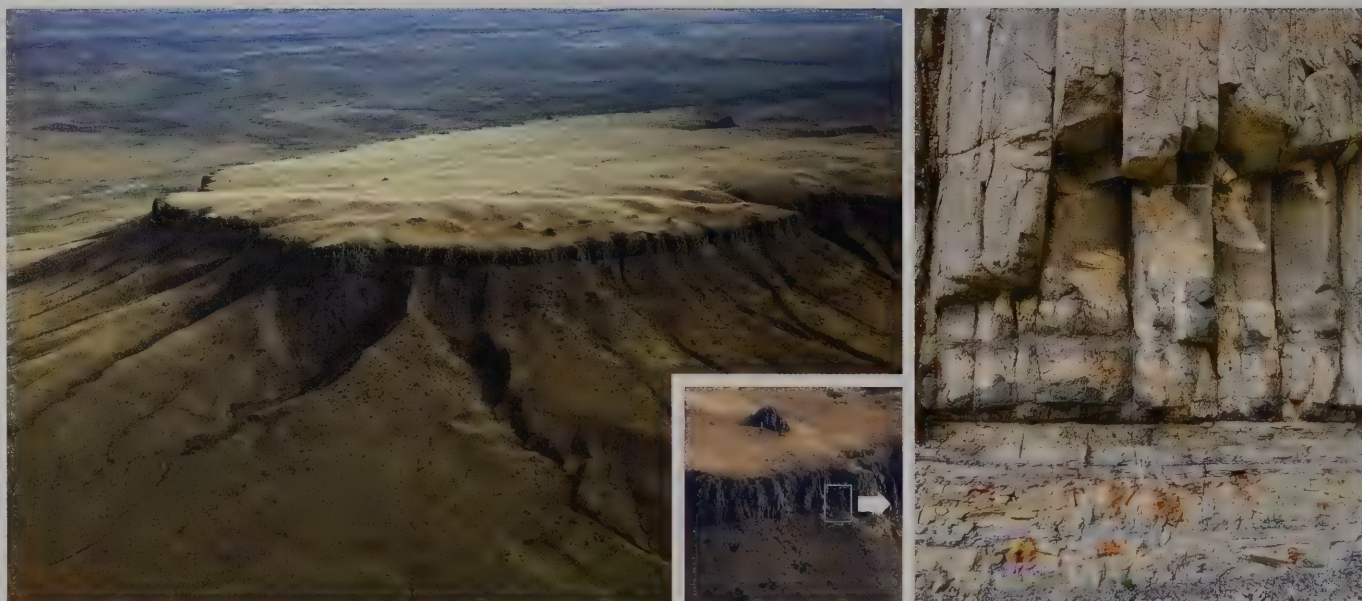
With this definition in mind, finding a true butte should be easy, especially right here where I'm standing, on the summit of the Crown Butte near Simms. Its top is relatively flat but slants earthward toward the west and is split in two by a deep cleft. So in the strictest terms it perhaps doesn't quite qualify. But look due east from here and you'll see its larger, more famous cousin, which could be the dictionary's photo accompaniment in the "butte" entry.

But size isn't everything, and in a state whose very name means "mountainous," we might be forgiven for making mountains into molehills.

National Park. And yet, in name at least, it's merely a butte.

A butte's given name isn't much help at distinguishing location. You may be standing on Crown Butte—but which one? Seven are scattered throughout the state. Montana is also home to at least 21 Haystack Buttes. Black Butte takes the prize with 30 entries, including one named, unhelpfully, "Black Butte Mountain."

Like cartographic step-siblings, buttes that share a name often share little geological DNA. Haystack Butte near the Front is a vertical plug of volcanic magma eroded into that distinctive conical shape. Haystack Butte in Glacier National Park looks nothing like it; it's mostly limestone, a remnant of ancient sea beds uplifted and sculpted by glacial action. Glacier's Haystack is also a bit underwhelming. It's a ridgelike hump attached to massive Mount Gould



HARD AND SOFT Above left: an aerial view of Square Butte in Cascade County, 20 miles west of Great Falls. Above right: Igneous rock resists weathering more than the softer layered limestone sedimentary rock underneath, resulting in the iconic capstone that forms many flat-topped buttes.



SAME NAME, DIFFERENT SHAPE Of Montana's more than 600 named buttes, few look the same, raising questions as to what constitutes a hill, a butte, or a mountain. Clockwise from above left: Haystack Butte on the Rocky Mountain Front; Black Butte in the Gravelly Range; Birdtail Butte near Simms; haystack buttes in the Terry Badlands. All are shaped by different geological forces, including volcanic activity, sedimentation, and erosion.



Square Butte, about 20 miles west of Great Falls, is massive, much larger than this Crown Butte, with nearly symmetrical steep, sloping sides below vertical cliffs encircling a flat, level top. Like Crown Butte, Square Butte is a laccolith—a giant mushroom of magma that forced its way up through weaker sedimentary layers of rock before cooling in place. Erosion has worn away the softer layers around its igneous cap, leaving a steep, cliffy remnant in its wake. Even if you've never driven past it on Interstate 15, you're almost certainly familiar with Square Butte's distinctive shape. You'll have seen it in the western art of Charles M. Russell. Russell made frequent use of the buttes surrounding Great Falls in his vibrant landscapes—Square Butte (and its eastern counterpart near Geraldine, also named Square Butte) in particular.

It's easy to see why. The Square Butte west of Great Falls so utterly dominates its surroundings, and is so perfectly shaped and steep and flat, so buttelike, that it's the region's iconic feature. Its haughty summit holds court over Crown Butte, Shaw Butte, and a constellation of lesser humps of rock scattered between these geological formations and Great Falls (a city that just as well could

have been named Great Buttes). Square Butte shows up in paintings today by artist Monte Dolack and others, and it remains a compelling landmark no matter how often you pass by.

That was just as true for some of the explorers who laid eyes on it, before it took its present name. Shortly after completing their epic portage of the Great Falls of the Missouri in the summer of 1805, Lewis and Clark first sighted Square Butte on the western horizon. Peering through his spyglass from a dozen miles away, Captain Meriwether Lewis made a ballpark estimate of the huge feature, noting in his journal, "This mountain has a singular appearance. it is situated in a level plain, it's [*sic*] sides stand nearly at right angles with each other and are each about a mile in extent." In his record describing this most buttelike of buttes, he happened to give it a name. If any feature the Corps of Discovery had seen thus far could be called a butte, it was this. It should have been a slam dunk, like shooting fish in a barrel.

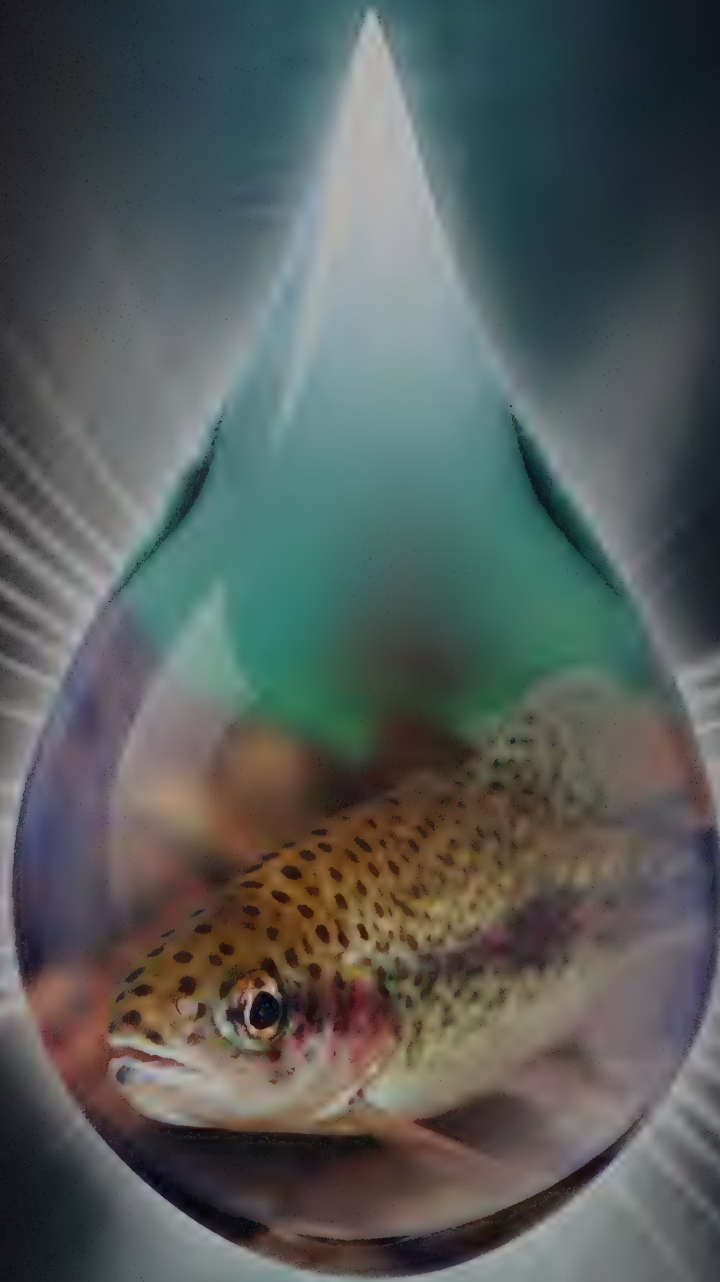
So what did Lewis dub this mother of all buttes, in the very heart of butte country?

He called it "Fort Mountain," of course. 🐻

A Little Goes a Long Way

FWP, landowners, and private conservation groups are working to keep just a bit more water in spawning tributaries—the natural “hatcheries” of Montana’s storied trout rivers.

By Tom Dickson



For years, Alan Carroll and his wife inadvertently irrigated their apple orchard and hay field with tens of thousands of baby rainbow trout. The couple pumped water from an irrigation ditch that ran along the hill above their cabin near the Jefferson River, a few miles north of Twin Bridges. The ditch drew water from Hells Canyon Creek, a small tributary of the Jefferson River. The Carrolls had no idea that tiny trout fry were part of the mix.

Then in the mid-1990s, Montana Fish, Wildlife & Parks biologists met with the couple to explain that, each April, rainbow trout moved up Hells Canyon Creek from the river to spawn. When the eggs hatched into trout fry, more than one-third of the little fish were drawn into the irrigation ditch and spewed onto the couple's alfalfa fields and orchard. "That didn't seem right to us," Alan Carroll, a carpenter, says.

There was another problem: Most of the water drawn from the creek did not reach their crops. "We diverted three cfs [cubic feet per second] but were lucky if we got even one," Carroll says. Like other earthen irrigation ditches across Montana, theirs leaked. Precious water soaked into the arid sagebrush-studded hillside where the ditch had been dug decades earlier. Because this forced the Carrolls to pull more water to get what they needed, they typically drained lower Hells Canyon Creek by late summer.

That was another blow for baby trout, says Ron Spoon, an FWP fisheries biologist in Townsend who has devoted much of his career to restoring the Jefferson trout population. "Not only were they being entrained in the ditch, but the ones that remained in the creek were stranded and couldn't make their way down to the Jefferson," he says. Trapped in shallow pools, the young trout became easy prey for kingfishers and other birds.

Hells Canyon is one of only three spawning tributaries on 40 miles of what was once one of Montana's premier trout rivers. As Hells Canyon went, so went the Jefferson's rainbow population.

To solve the creek's chronic dewatering dilemma, FWP, Carroll, and two other water rights holders signed a lease agreement in 1996. State and federal agencies paid to replace the ditch with a \$200,000 gravity-fed

pipeline. They also installed a fine mesh self-cleaning screen that allows water into the pipe but keeps young trout out. Carroll used some of the water saved by the new system to irrigate his land more efficiently. He and the other landowners leased the rest of the water to FWP, which kept it in the creek to benefit trout. "It was totally win-win," Carroll says.

The Hells Canyon Creek lease, recently renewed until 2029, is a good deal for all parties. But consider this: Of the more than 300 other chronically dewatered streams across Montana that FWP has identified, the agency has secured only a handful of water rights leases like the one on Hells Canyon. If leasing can help improve trout reproduction

on vital spawning tributaries, why isn't the agency doing more of it elsewhere?

NATURE'S "HATCHERY TRUCKS"

Montana trout rivers are the superstars of fishing videos and tourism brochures. But with some exceptions—a few rivers below dams with ample main stem spawning habitat—it's not the rivers but their tributary streams that produce most of the trout that end up in those renowned waters.

Each year, trout swim up tributaries to lay their eggs: rainbows in late spring, cutthroats in midsummer, and bull and brown trout in the fall. They use their fins to create dish-shaped spawning pads, known as redds, in



DRAINED Above left: Tiny Hells Canyon Creek, shown here in early spring, is a major spawning tributary for the Jefferson River (below). Above right: Ron Spoon, FWP fisheries biologist, says chronic dewatering in late summer prevented the creek from producing rainbow trout.



which eggs are oxygenated by water flowing over bottom gravel. After hatching, baby trout (“fry”) need a certain amount of water in the stream to survive the next several months. Once they reach about three inches long, the young trout require enough water to swim downstream to the main river, where in a few years they grow to catchable size.

“When Montana switched to wild trout management and stopped stocking rivers in the 1970s, tributaries became our ‘hatchery trucks,’” says Spoon. Fed by mountain runoff and springs, tributaries also cool rivers in late summer and provide temporary refuges for adult fish.

What’s more, creeks do all this with a surprisingly small amount of water.

TROUT DON’T READ

As she’s driving us south along U.S. Highway 89 in the upper Paradise Valley, Carol Endicott promises to show me the Yellowstone River’s most productive Yellowstone cutthroat trout spawning tributary. Envisioning a major stream, I’m surprised when the FWP fisheries biologist crosses a small creek near Tom Miner Basin and hits the brakes. “Whoa! I always drive past it,” she says.

No wonder. The rivulet is hardly visible from the highway. On this May day, spring runoff has swelled it to about 15 cfs. But in

When Montana switched to wild trout management and stopped stocking rivers in the 1970s, tributaries became our ‘hatchery trucks.’”

August, when the cutthroat eggs are hatching, the creek flows at just 2 to 3 cfs and is no wider than a neighborhood sidewalk. By comparison, in August the nearby Yellowstone roars past at 3,000 cfs, as wide as a six-lane freeway.

FWP studies show that most of the Yellowstone’s cutthroat trout spawn in this and a half-dozen other tributaries. Collec-

Tom Dickson is editor of Montana Outdoors.



NATURE'S HATCHERIES Counterclockwise from top: A rainbow trout clears debris from gravel in a spawning tributary before laying its eggs. Creeks like these are where most trout are produced. Baby trout live in tributaries for several months, requiring steady flows to protect them from predators and allow for outmigration downstream to rivers. FWP Yellowstone cutthroat trout biologist Carol Endicott at a critical spawning tributary flowing into the Yellowstone River.



tively, it’s not a lot of water, maybe 50 cfs total, and mainly in short stretches. This particular creek’s most productive spawning habitat runs from the highway upstream for just a quarter mile.

Endicott points to small gaps between basketball-size boulders. Each summer, while cars and pickups whiz past, cutthroat move up from the river to lay their eggs in gravel patches that Endicott describes as “the size of teacup saucers.”

“It’s certainly not textbook spawning habitat,” she says. “I guess these trout didn’t read the textbook.”

MONTANA RECOGNIZES FLOWS

Trout don’t require much water as spawning and rearing habitat, but they definitely need some, especially at critical times of the year.

Each summer, hundreds of streams across Montana, many of them trout spawning tributaries, drop dangerously low. Among the causes: inadequate snowpack, natural leakage into gravel substrate, and diversions for mining and town and city water supplies.

But the biggest water draw comes from crop irrigation. Essential for supporting Montana’s agricultural and livestock economy, the timing of most irrigation withdrawals couldn’t be worse for young trout. What Spoon calls the “six-week problem”

occurs from late July through mid-September. “That’s when tributaries need a certain amount of water to keep those baby fish alive, so they don’t get stranded and become bird food,” he says.

Biologists and trout anglers aren’t the only ones concerned about tributaries left high and dry. Many landowners want their property to provide healthy fish habitat. Yet for decades, they couldn’t leave water in tributaries because Montana law required that rights holders put it to a “beneficial” use—which included only “diversionary” purposes such as irrigation. Otherwise they risked losing their water rights (see “How Montana water law affects spawning tributaries,” page 19).

Montana began viewing rivers in a new light in 1969. That’s when the legislature passed the “Murphy Rights” bill—named after the bill’s author—formally recognizing that flows were necessary for fish habitat. The bill also authorized what was then the Fish and Game Department to file water rights claims for instream flows on several of the state’s top trout rivers.

In 1973, the Montana Water Use Act firmly established flows as a beneficial use of a stream. Finally, it was legally permissible to protect water flowing in a creek.

Unfortunately, it wasn’t economically



feasible for many landowners. So in 1989, Montana lawmakers began allowing FWP to pay willing landowners to lease all or some of their water rights, for up to 10 years at a time, to restore or maintain “instream flows” (water in a stream channel). In 1995, Montana passed another bill allowing non-governmental organizations (NGOs) such as Trout Unlimited to do the same. “With instream flow leases, the landowner is just temporarily leasing the right to FWP or an NGO like us to provide flows in a creek,” says Stan Bradshaw, an attorney for Trout

Unlimited’s Montana Water Project and former head of FWP’s legal team.

FWP holds 16 instream flow leases (four of which are pending final approval by the Montana Department of Natural Resources and Conservation, or DNRC), TU has more than 20, and the Clark Fork Coalition holds another dozen or so. “It’s all about maintaining connectivity,” says Andy Brummond, one of three FWP water conservation specialists. “We want to maintain a water link from the upper reaches where the fish spawn to the mouth, with no dry spots in between.”

Most leases protect stream stretches of less than a mile. “It doesn’t take much. It’s not like we’re trying to re-water 100 miles of stream at a time,” Brummond says.

One TU lease is with the Mannix Brothers Ranch on Wasson Creek, a tiny tributary of Nevada Creek, which feeds the Blackfoot River. “We lease less than 1 cfs in the stream, but that small amount is critical habitat for the pure-strain westslope cutthroat that spawn there,” says Bradshaw.

On the Yellowstone River spawning tributary I visited with Endicott, the senior water rights holder worked with FWP to develop an alternative water source for irrigation, then transferred his water rights to the agency. “With that and another lease, we end up getting from 1.3 cfs to 3 cfs in the creek. That’s all the water we really need to provide an amazing amount of cutthroat reproduction,” Brummond says.

By themselves, water-protecting leases often aren’t enough to fully restore a tributary to its trout-producing potential. On Wasson Creek, TU worked with the landowner to fence cattle away from the stream, where trampled banks increased siltation that smothered trout eggs. The partners also rerouted the stream—parts of which had been “channelized” (straightened)—back to its original meandering channel. As part of other instream leases, TU, the Clark Fork Coalition, FWP, and other groups and agencies help landowners upgrade irrigation systems by converting porous ditches to steel pipes and replacing

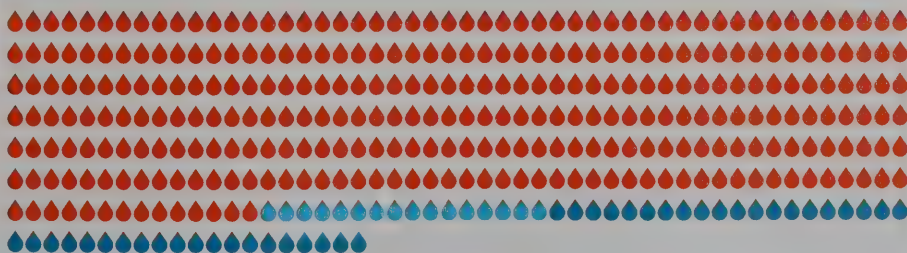


314 chronically dewatered streams in Montana

For more than a century, hundreds of Montana streams and rivers run dry in late summer. Until relatively recently, a dry creek meant that water was being put to a “beneficial use” such as irrigating hay fields. But in recent years, more landowners have wanted to keep water in their streams to benefit fish and wildlife. One option is an instream flow lease agreement with FWP or a nonprofit conservation group. Yet even though these legal agreements have been around since the 1990s, only 15 percent of chronically dewatered streams are protected this way.

● Chronically dewatered streams	314*
● Flows protected with an FWP lease	16
● Flows protected with a TU or Clark Fork Coalition lease or other means	40*

* Approximate number



leaky headgates, for example. Some or all of the saved water stays in the stream to help trout. “Many irrigation supply systems in Montana are old and inefficient,” says Spoon, the Jefferson River biologist. “People did the best they could back then, but now, with water in such scarce supply, systems need efficiency upgrades.”

To ensure trout can take advantage of the lease-protected water, conservation partners also remove instream barriers blocking fish passage; install fish screens; plant bank-side willows, alders, and other shade-producing shrubs; and pay for stock tanks so cattle can drink without damaging stream banks. “Water is essential, but it’s not enough just on its own,” says Endicott, the Yellowstone westslope cutthroat biologist. “Only when partners come together to restore and protect habitat can tributaries function for trout like they need to.”

WHY SO FEW?

In the mid-1990s, FWP biologists compiled a list of 140 “chronically dewatered streams” across Montana. In 2005, the department increased the list to 314 streams. A current

“We’ve got a strong track record with leases that don’t create problems for landowners, and there’s plenty of opportunity to do more.”

revision adds even more. “Pressure on streams is increasing from things like new wells for more subdivisions to farmers increasing their irrigated acreage,” says Stephen Begley, an FWP water conservation specialist working on the list.

Instream flow leases aren’t the only way to maintain water in chronically dewatered streams. Landowners can ask DNRC for a “change in use” that allows them to maintain some or all of their water rights as instream flow. Other tools include voluntary drought response plans and agreements with the U.S. Fish & Wildlife Service to protect potentially threatened species such as Arctic grayling.

But usually the most feasible way for landowners to retain a bit more water for fish is with an instream flow lease.

Unfortunately, the legal agreements protect water in only 15 percent of the chronically dewatered streams that dry up most summers. “One reason we don’t see more leases is this belief that if you’re not using water for consumptive purposes such as irrigation, you risk losing your water right—even though that hasn’t been true for half a century,” Bradshaw, the TU attorney, says. Another is the complicated process, including public review, that DNRC must conduct before okaying any “change in use,” also required for instream flow leases. “DNRC’s role is to protect all water users and make sure no one is harmed by a proposed change,” says Brummond, who worked for the agency before moving to FWP. “It can end up taking a long time, which can be frustrating for FWP and groups like TU, but it’s a necessary part of the process.”

State agencies and conservation groups also lack capacity to take on many more lease projects. “Trout Unlimited is going full tilt, with four people in Montana alone

How a spawning tributary can—and can’t—help trout

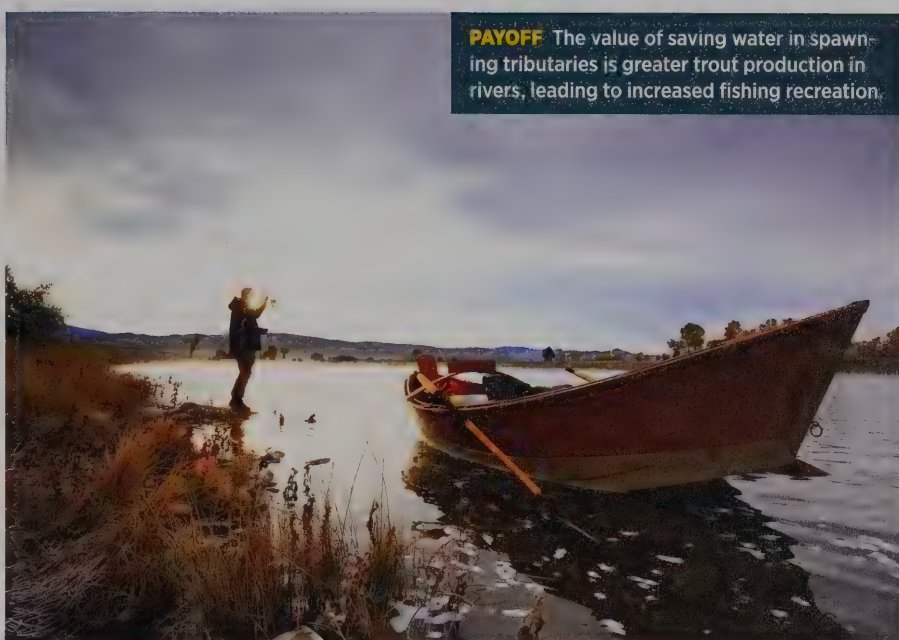


working on leases,” says Bradshaw. FWP employs three specialists who, with help from department attorneys, work on in-stream flow leases and other water issues.

“A FIXABLE PROBLEM”

Standing near the bank of the Jefferson River one recent spring morning, Spoon acknowledges the hurdles preventing more instream flow leases on trout spawning tributaries. “We’re dealing with old water systems and complex water law,” he says. Even so, he believes that many more de-watered streams can be saved. “It’s a fixable problem. We’ve got a strong track record with leases that don’t create problems for landowners, and there’s plenty of opportunity to do more,” he says.

Spoon has seen firsthand how the legal agreements can improve trout populations. “Back in the 1970s and early ’80s, the Jeff was healthier, with more trout and even a few grayling,” he says. Then, over the next quarter century, drought, climate change, and de-watering took their toll. Thanks to the water lease at Hells Canyon and the restoration of two other spawning tributaries, helped by the



PAYOFF The value of saving water in spawning tributaries is greater trout production in rivers, leading to increased fishing recreation.

Jefferson River Watershed Council, TU, and conservation-minded landowners, the river is making a comeback. Trout numbers more than quadrupled from a low of 288 per mile in 2004 to 1,200 in 2014. The population has since declined for unknown reasons but still

remains higher than two decades ago.

This past spring, FWP biologists counted several hundred spawning rainbows in Hells Canyon Creek alone. “All the baby trout those fish produced?” Spoon says. “They’re the Jefferson’s future.” 🐟

How Montana water law affects spawning tributaries

Starting as far back as the late 1800s, demand for water by farmers, ranchers, miners, municipalities, and others began outstripping supply. Most western states responded by adopting a legal framework called the Prior Appropriation Doctrine, commonly summarized as “first in time, first in right.” This means that water users with the oldest claims have the first (senior) priority for water.

“Let’s say you have two ranchers along a stream. The one down by the mouth has an 1890 water right and the one farther upstream has a 1910 water right,” says Stan Bradshaw, an attorney for Trout Unlimited’s Montana Water Project. “If, during a summer when water levels are low, the rancher with the senior water right is not getting enough water, he can insist that the upstream rancher stop irrigating.”

Another element of prior appropriation is known as “use it or lose it.” This means water rights holders must put water to a “beneficial use” or risk losing their rights altogether. This was originally meant to prevent senior water rights holders from allowing their water to “uselessly”—the thinking at the time—flow off to the ocean while neighbors with junior rights who needed the water stood helplessly by.

For decades, Montana law only recognized “consumptive” uses, such as irrigation, as a beneficial water use. Not until 1973 did the state recognize the “non-consumptive” use of instream flow for trout habitat. “That was huge,” says Brummond. “That started the ball rolling.”

To change the purpose of all or some water in a right, say from irrigation to instream flow, a rights holder must apply for and be granted a “change in use” authorization by the Department of Natural Resources and Conservation (DNRC). The agency okays the change only if it determines that other water users won’t be harmed. “Rarely would a change to instream flow harm someone else, but it’s DNRC’s responsibility to verify that with all parties before approving a lease proposal,” says Brummond, who previously worked for that agency. “And when you’ve got multiple rights holders on a stream, which is often the case, that verification process can take a long time.” ■



The Billings Land & Irrigation Company building an irrigation canal in 1895. Irrigation has long been essential to Montana’s cattle and farming industries. New laws help trout receive some of that water without hampering irrigation operations.

A full-page photograph of a man in red swim trunks jumping into a body of water. The scene is set at sunset, with a warm orange glow across the sky and water. A large evergreen tree is on the left, and the sun is visible on the right horizon. The man is in mid-air, with his arms and legs spread wide.

WET AND WILD



See record-book bighorn rams? Nap on a beach? Leap into crystal-clear water? Whatever your fancy, a visit to Flathead Lake State Park should be on everyone's list of must-do summer adventures. **BY PEGGY O'NEILL**

On a warm summer day a few years ago, I set a personal best for running the 50-yard dash.

Not bad for a person in her 40s, wearing hiking boots and sprinting uphill on Flathead Lake's Wild Horse Island, one of the six units that comprise Flathead Lake State Park.

My husband and I had spent the previous night in a rustic cabin (I'm lucky to know one of the island's 31 cabin owners), and we woke early to explore the 2,160-acre island. Our goal was to hike to its highest point, Eyeglass Peak, 900 feet above lake level. We filled our water bottles, packed a lunch, laced our boots, and headed out the screen door.

Wild Horse Island, on the southwestern arm of the massive 122,560-acre lake, has a small trail system that takes you to the Johnson homestead, a cabin built in the early 1910s by a Norwegian immigrant. Visitors are also free to explore the entire island off

trail except for the private lots that dot the shoreline.

People reach the island by motorboat, kayak, sailboat, canoe, or commercial launch. After landing on any of several sandy beaches, most visitors wander the island among stately conifers and colorful fields of arrowleaf balsamroot, larkspur, yarrow, nodding onion, and owl-clover.

In addition to its beautiful flora, Wild Horse is well known for its abundant and diverse wildlife. The island is home to bighorn sheep, mule deer, songbirds, bald eagles, wild turkeys, loons, ospreys, and merlins. A few mountain lions live there, too, as do black bears and the lake's five wild horses (more on those later). While hiking through its Palouse prairie, a grassland native west of the Continental Divide, it's easy to envision how the island's history played out.

There are several stories of how horses first reached the island. The one most commonly told is that, in the 18th and 19th cen-

turies, Kootenai Indians swam their best horses to the island, via Cromwell Island, to protect them from Blackfeet raiders who roamed the lake shoreline. When explorer John Mullan, part of the Isaac Stevens party, recorded the lake's numerous islands in his 1854 journal, he wrote that one was "called the 'Wild Horse' island."

Among the hundreds of non-native landowners who tried to make a living on the island, several devised grand plans that either failed or never got off the ground. Resorts proposed in the 1950s and '60s featured golf courses, airstrips, and even a ski slope. Fortunately none of those were built. One grand structure that did arise was the Hiawatha Lodge. Built for wealthy tourists, it operated during the 1930s until its owner drowned in the lake.

CLOSE CALL

But on that summer day in 2014, my husband and I felt like we were the only two





people on the island. An osprey circled slowly in the blue sky, and western meadowlarks sang in the tall grass. While searching for the island's namesake wild horses—five mares, descendants of feral herds brought to the island decades ago from Bureau of Land Management property—we passed a Montana heritage apple orchard, still producing fruit a century after it was planted.

Descending into a meadow, we startled two gigantic mule deer bucks. To this day, those are the largest racks I have ever seen. Wildlife biologists note that the lack of hunting allows the island's deer and bighorn sheep to live long enough to grow massive headgear. A half hour later, while heading up a hill, we encountered a dozen or so of those enormous rams. I wouldn't be surprised if one was the world record designated by the Boone and Crockett Club in 2018. Before dying of natural causes, the nine-year-old ram, which scored 216 $\frac{3}{8}$ points, lived its

entire life on Wild Horse Island.

It was at that point that I set my own record. While trying to sneak up to get a closer look at the rams, I stepped on a rotted tree stump. Since I was in stealth mode, moving slowly and quietly, I was startled when my husband suddenly screamed, "Bees!" As I turned to give him a look for ruining our encounter with the sheep, I saw he was pointing to where I stood with a horrified look on his face. I looked down and saw a swarm of yellowjackets enveloping my foot.

I don't really remember what happened next, but within seconds I was 50 yards away and, luckily, yellowjacket free and sting free. But unfortunately I was also bighorn-photo free.

WATER, WATER EVERYWHERE

Wild Horse Island is just one stopping point on a tour of Flathead Lake State Park's six units. Driving clockwise from Polson around

the lake, you'll also hit Big Arm, West Shore, Wayfarers, Yellow Bay, and, finally, Finley Point. Each offers spectacular scenery, lake access, and camping.

The largest natural lake west of the Mississippi River, Flathead is 27 miles long, from north to south, and about 15 miles wide. It covers 191 square miles, and its deepest point reaches down to 371 feet.

Like many other large, deep lakes worldwide, Flathead has spawned unsubstantiated reports of a giant aquatic inhabitant. Since the late 1800s, dozens of people have claimed they've seen a large creature. The Flathead Lake Monster is described as between 20 and 40 feet long with humps on its back and a dark, snakelike body.

Fisheries biologists and anglers who have plied the lake for decades with nets and sonar have never seen such a creature. But the lake is *definitely* home to monster game fish. The state record lake trout (42.69 pounds) and lake whitefish (10.46



LAKE LIFE Clockwise from far left: Boaters beach on Wild Horse Island; a stand-up paddleboarder heads home at sundown; the island still houses five wild horses, progeny of animals brought from BLM property elsewhere; closed to hunting, the island is also home to mule deer with huge racks and bighorn sheep, some with record-book horns.



A hand-drawn map of Montana on aged, yellowed paper. The map is titled "MONTANA" in large, stylized capital letters across the center. Above the title, the word "Edmonton" is written, with a small square box drawn next to it. Below the title, the word "Great Falls" is written. To the left of the title, "Missoula" is written. Below "Missoula", "Glendive" is written. To the right of the title, "Billings" is written. Below "Billings", "Dulles" is written. The map is enclosed in a simple rectangular border with a decorative, slightly irregular edge. The paper shows signs of age, including discoloration and some staining.



A scenic view of a mountain range with snow-capped peaks, a body of water, and a grassy foreground, framed by an arched border. The mountains are rugged and partially covered in snow, with some rocky outcrops visible. The water is calm and reflects the sky. The foreground is a lush green field with some small trees and shrubs. The entire scene is enclosed within a simple arched frame.

Looking south-east to the Niagara Mo-

A watercolor illustration of a lily flower, labeled "Glasner Lily". The flower has yellow petals with red streaks and a red center. The label is a small rectangular box with the text "Glasner Lily" and "No. 100" below it.



Canada Goose

PLATEAD

ELMO

IN REPLY

A photograph of a mounted deer head with large, dark antlers. The head is facing left and is mounted on a light-colored wall. The antlers are prominent and have a textured, velvet-like appearance. The deer's coat is a mix of brown and tan colors.

*Whitell Bros

Osprey

FLATHEAD LAKE

KALISPELL

SOMERS

LAKESIDE

1875

L A K E

POLSON

Bigfo

209
FERNALD

Weeds

A view of the Snow Range and the peaks of Glacier Nat. Pk.

Legend

-  Campground
-  Picnic Site
-  Airport
-  Public Fishing Access
-  Polytic Boat Launch
-  Indian Reservation
-  River Road
-  Minor Road
-  Streams, Rivers
-  Mountain Peak
-  White water Access
-  Trails
-  Golf Course



pounds) both came from Flathead Lake, and the lake's bull trout occasionally top 20 pounds. Other species attracting anglers include westslope cutthroat trout, rainbow trout, and kokanee.

Boaters find access via boat ramps at Wayfarers, West Shore, Big Arm, and Yellow Bay in all seasons but midwinter, when a few of the lake's bays freeze. Fishing heats up during the spring Mack Days tournament. Sanctioned by FWP and heavily promoted by local communities, the fishing contest is a management tool for the Confederated Salish and Kootenai Tribes to reduce numbers of non-native lake trout in the lake and boost native bull trout and westslope cutthroat trout populations. The tournament offers a wide range of prizes as incentives for catching lakers, with a total payout of \$225,000.

In addition to its popular fisheries, Flathead Lake is breathtakingly beautiful, no

matter the vantage point: from the highway, a boat, a paddleboard, an inflatable duck, or even behind a snorkeling mask. The water is so clear that when standing on shore you can see the multicolored rocks covering the lake bottom. The water is also cold, ranging from 36 degrees F. in mid-January to just 68 degrees F. in mid-August. Don't even try to ease in; get a running start.

Just as beautiful as the lake itself is Flathead's surrounding scenery. On a clear, calm day, when the sky is perfectly reflected on the water, you can see the snowcapped Mission and Swan Mountains to the east and the Salish Mountains far to the west.

AROUND THE LAKE

Those with strong arms and plenty of time can tour the lake and its six state park units by kayak. The Flathead Lake Marine Trail is a network of access points and stopover areas. Kayakers can spend a day on the "trail" (actually more of a concept than an actual signed route) or plan a trip that includes camping at one or several of the state

park units. The campgrounds are full all summer, so multiday kayakers need to make campsite reservations well in advance.

Big Arm, a popular jumping-off point for Wild Horse Island, features 217 acres with 41 campsites among mature ponderosa pine and juniper trees. A 1.75-mile hiking trail is a great route for watching birds at dawn and dusk, and the beach offers access to swimming, scuba diving, waterskiing, boating, or just lying in the sun with a good book. From mid-April to October, the unit also rents three large, round wall tents, known as yurts, for family gatherings and overnight stays.

West Shore offers 31 campsites among groves of Douglas fir, ponderosa pine, and American larch (tamarack) on its 129 acres. Glacially carved rock outcrops rise from the lake and provide fantastic views of the water and the mountains across the lake. Swimming, boating, and fishing are popular activities along the rocky beach.

Wayfarers unit is just south of Bigfork. A nature trail from the shore to a scenic

Peggy O'Neill is chief of the FWP Information Bureau.



WATER WONDERLAND Above: Kayakers (with companion) paddle along the lake's scenic shoreline. Right: An angler holds a lake trout. Not native to Flathead Lake, the predator species outcompetes native westslope cutthroat trout and bull trout. The annual Mack Days fishing tournament aims at reducing lake trout numbers and helping the indigenous species. Left: A boater trailers his craft at the West Shore unit after a day on the water.





TWO GREAT VIEWS Top: A dad and his daughter watch waves crash into their boulder seat. Bottom: Sailboats anchor off Wild Horse Island's Skeeko Bay.





overlook leads hikers through a carpet of wildflowers in midsummer. The unit offers 30 campsites on 67 acres, including a hiker-biker campsite with nine tent pads, convenient for cyclists traveling the nearby Continental Divide route. Swimming, boating, fishing, and picnicking are popular here.

Smaller, but in no way inferior, are the Yellow Bay and Finley Point units along the lake's eastern shore. At 15 acres, Yellow Bay offers five tent sites that are first-come, first-served, plus a small beach perfect for sunbathing and swimming. Even with vehicles on Montana Highway 35 rolling by just a few hundred yards away, the sites nestled among tall trees feel far from civilization. Finley Point provides 27 secluded campsites on its 28 acres in mature pine forest. Activities include fishing, camping, hiking, swimming, and boating.

Those with a boat can head to Wild Horse Island. Camping is not allowed, but visitors can spend an entire day hiking around the island to discover its many treasures before heading back to one of the park units on the

main shore. For those without a boat, commercial launches shuttle people to and from the island.

LONG HUMAN HISTORY

Flathead Lake was once part of Glacial Lake Missoula, which covered much of western Montana until roughly 15,000 years ago. The southern part of the lake, including Wild Horse Island, occupies part of the Flathead Indian Reservation, established by the Hellgate Treaty in 1855. The reservation is home to three tribes—the Bitterroot Salish (Flathead), Upper Pend d'Oreille, and the Kootenai—who govern themselves collectively as the Confederated Salish and Kootenai Tribes. Historically, territories of the three tribes covered all of today's western Montana and parts of Idaho, British Columbia, and Wyoming.

According to Sara Scott, the FWP Parks Division's Heritage Resource Program manager, the area still holds evidence of its original inhabitants, including "remains of pictographs, fire hearths, and campsites

where people made stone tools," she says. Most archaeological evidence has been removed or disturbed, usually unwittingly, by private landowners and state park visitors. A notable exception is a 300-year-old grove of ponderosa pines on Wild Horse Island that contains trees showing oval-shaped scars four or five feet up from the ground. The marks were made during the late 1800s when, each spring, "Native Americans would peel back the bark, which didn't kill the trees, and eat the sweet cambium layer," Scott says.

She adds that the lake is named for the local Salish Tribe, whom European settlers referred to as Flathead Indians, mistakenly thinking they employed a form of head binding or cranial deformation that was practiced by tribal people elsewhere.

PACKED PARK

Though humans have used the lake for millennia, visitation in recent years has pushed the infrastructure to capacity. Collectively, Flathead Lake State Park units receive

CLOCKWISE FROM TOP LEFT: ELIZA WILEY; JEREMIE HOLLMAN; ELIZA WILEY; JEREMIE HOLLMAN; WICK HINES



A PLACE OF PEOPLE Humans have been living along Flathead Lake for thousands of years. Clockwise from near left: pictographs, estimated to be 3,000 years old, along the western shore near the West Shore unit; scars on ponderosa pines on Wild Horse Island show where Native Americans in the late 19th century peeled back bark to expose the sweet cambium layer; edible apples in a Montana heritage orchard, planted on the island in 1918.



more than 323,000 visits each year. Wayfarers—the closest to Bigfork and Kalispell—takes in more than half of that visitation. The unit is packed with visitors on summer weekends.

July is the park's busiest month with more than 92,000 visits, followed by August with 69,000 visits, says Amy Grout, FWP park manager for five of Flathead Lake State Park's six units. Hoping to score a campsite during peak tourist season? You'll need to book a site on FWP's online reservation system several months in advance. "Our campgrounds are always full from the middle of June through most of August," Grout says. Cancellations occur, but it's wise not to plan a family weekend or vacation on the possibility.

That doesn't mean you can't park at any of the units for a hike, picnic, or other day-only use. But heads up: On summer weekends the lot at Wayfarers fills by 10 a.m. Weekdays are far less crowded.

Managing state park units on beautiful Flathead Lake might sound like a dream job, but it has its challenges, including aging and overused boat ramps, comfort stations, sewage systems, and other infrastructure plus a shortage of park rangers, Grout says. Still, the constant crush of park visitors is also the source of her greatest satisfaction. "I take a lot of pride in providing a safe place for so many people to visit and recreate. And I like helping them enjoy the outdoor activities on and around the lake that I love so much," she says.

Like all of Montana's state parks, it's hard to leave Flathead without a great story. Of how you gritted your teeth and dove into the icy water, or caught your biggest lake trout, or heard a loon's lonesome song for the first time.

The story of how I outran yellowjackets on Wild Horse Island has worked its way into my own family's lore. I've marked a date this summer for another visit to this wild, watery state park—maybe this time in a kayak—so I know there will be more stories to come. 🐻

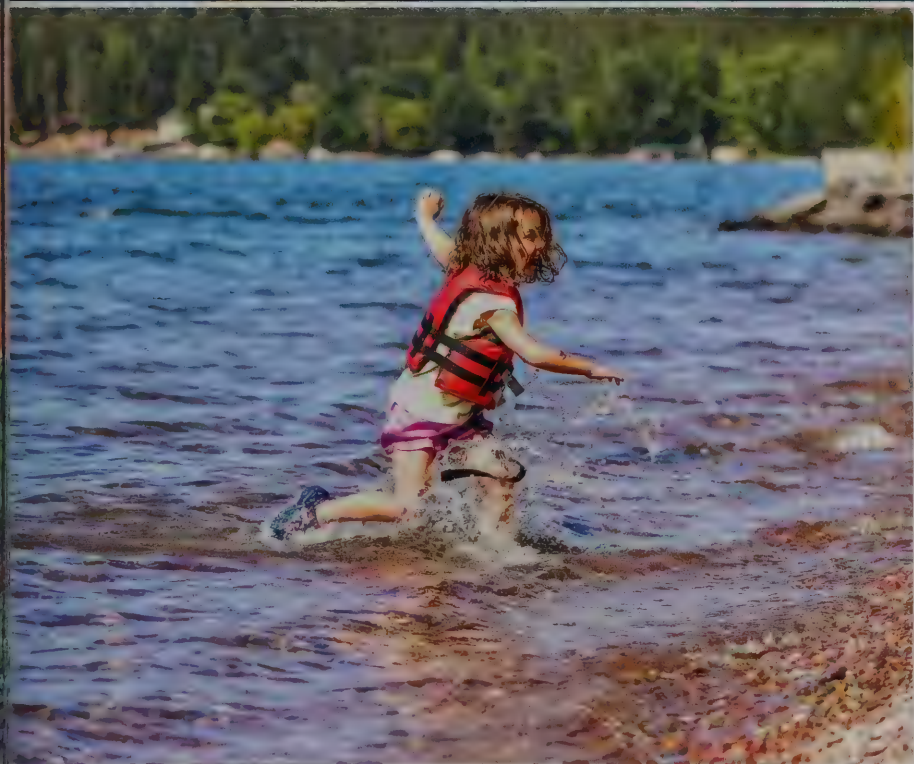
To reserve a campsite at Big Arm, West Shore, Wayfarers, or Finley Point (reservations are not taken for Yellow Bay), or to learn more about Flathead Lake State Park, visit stateparks.mt.gov.



A WHOLE LOT TO LOVE
Clockwise from top: The largest natural lake west of the Mississippi River, Flathead Lake stretches 27 miles from north to south; wakeboarding and waterskiing are popular; playing along a pebble beach; the covered picnic area at Wayfarers; RV sites at Finley Point; a million-dollar view from a tent pad at West Shore.



ALL PHOTOS ELIZA WILEY EXCEPT TOP AND FAR RIGHT: MIKE HINES



What We're After

Finding fish and solace at FWP's family ponds

By Ben Long



HOOKED The author holds one of his son Aidan's first trout at Buffalo Head Pond.

Henry David Thoreau once wrote, “Many men go fishing all of their lives without knowing that it is not fish they are after.” That well-worn quote was the furthest thing from my mind as my son and I drove down the country road that leads to Pine Grove Family Fishing Pond outside Kalispell. Stuff it, Henry. We were after fish.

In the oncoming lane going the other way we passed a white tanker truck with a nylon net rising like a ship's pennant above the cab. The truck was in the rearview mirror before my mind clicked: That was a Montana Fish, Wildlife & Parks hatchery truck! It had just been to the pond! I turned to Aidan in the passenger seat.

“Buddy,” I said, “we are in for some action.”

Real-world fishing

Read the glossy magazines or watch the outdoor videos and you might think Montana is all drift boats and pack trains, royal bull elk and rod-bending rainbows. In this fairy-tale Montana, kids skip to the local spring creek, where the rancher's dog welcomes them with a wagging tail. They dig a can full of worms and bring home a stringer of trout to fry up for dinner.

But real-life Montana is not a magazine cover or YouTube video. Montanans often

Ben Long of Kalispell is a longtime contributor to Montana Outdoors.

hold down multiple jobs that gobble up weekends and evenings. Filling the tank is a considerable investment. We keep watch over our unruly kids, and maybe their cousins and a few neighbor kids to round out the mob.

Parents are often too weary to load up the SUV for a week-long fishing vacation. And, as in the rest of the country, most Montana kids live in cities or towns, with more access to asphalt than trout streams.

But throw in a family fishing pond and you'll discover that, as Jim Vashro, a retired Montana Fish, Wildlife & Parks regional fisheries manager, says, “Everything is just better with a little water and some fish slime.”

Small budget, big payoff

During his long career with FWP, Vashro helped build the fishing ponds in and around Kalispell, my hometown. He was an early advocate for FWP's statewide Community Fishing Pond Program, which funds and supports community efforts to create or improve easy-access ponds that have high catch rates.

There is no hard-and-fast definition of what makes a family-friendly fishing pond. The FWP website lists 64, most of them ponds but also a few lakes and small reservoirs, within and outside town limits.

Regulations vary. Some ponds are only for kids age 14 and under. Older visitors can't fish there, though they can help the youngsters. Other ponds, like those near

Kalispell, are open to adults and kids alike. Adults can fish with or without kids, but only young anglers may keep fish.

Kids usually don't hook big fish here—though there are exceptions I'll explain soon. But they do catch fish, at least more often than they would fishing Montana's larger and more challenging rivers and reservoirs. And if you want a kid to learn to love fishing, outdoor educators say there needs to be steady action, especially on the first few outings.

The program's annual budget is \$50,000, recently boosted by the Montana Legislature. But in my experience the return on investment cannot be measured merely in dollars.

Hitting it out of the park

Glasgow's Home Run Pond is a prime example of a high-value community fishing pond. Its humble half-acre supports five species: rainbow trout, yellow perch, sunfish, catfish, and crappies. The pond is open year round for both open water and ice fishing.

“Glasgow is surrounded by water—Fort Peck Reservoir and the Milk and Missouri Rivers—but those are difficult and inaccessible places for a beginning angler,” says Andrew McKean, a longtime Glasgow resident, field editor for *Outdoor Life*, and a father who regularly took his three kids to Home Run Pond when they were younger. “People here recognized that if we could build an accessible fishing pond close to town so that

kids could ride their bikes to it, make it family friendly in a parklike setting, and use FWP resources to keep it stocked, it could be a real benefit to the community," he says.

And it has been. That's true not just in Glasgow but also in communities small and large across the state.

Even so, I gave family fishing ponds nary a thought until I was a father myself.

"I got one!"

When Aidan was about four years old, he caught his first trout—a six-inch hatchery cutthroat—at Buffalo Head Pond. It's a two-acre basin in north Kalispell that appears to be filled mostly with street runoff. Buffalo Head is stocked periodically, but the trout don't survive long in its warm, murky water. Aidan and I fished there a few times before we hit the hot bite. He reeled his first fish right up to the shore, but at the last second the fish leapt and threw the hook. Fatherly instinct kicked in. I jumped into the waist-deep water to scoop the trout into the landing net. Aidan posed for the hero shot with a death grip around the fish's gills. I would teach him the finer points of catch-and-release later.

In subsequent years, Aidan developed severe epilepsy and devastating intellectual disabilities. For a long while, we spent far more time in hospitals than we did fishing. We camped and canoed as much as we could, but the family's finances and free time were constrained. Once he grew heavier than 50 pounds, I knew I could no longer carry him out of the backcountry in case of a medical emergency. The frontcountry became our new frontier.

My son will never join me in the mountains chasing elk or bighorn sheep, but these local ponds provide us with a slice of Montana's great outdoors and endless hours of quiet moments under the state's big skies.

Aidan often must be dragged off the

water, sometimes insisting we stay until we catch the "biggest fish in the lake." We actually did that once, hooking a feisty brood stock rainbow that probably topped eight pounds. FWP periodically plants these hatchery monsters when they reach old age. I hooked it, watched the rod bend, then handed the rig to Aidan. The lunker trout almost pulled him into the water before we wrestled it ashore.

Then there was that day at Pine Grove Pond when we arrived right after the hatchery truck left. It was not the fishing frenzy one might imagine, but we steadily caught trout all afternoon.

On fishless days there are plenty of other creatures to entertain us. My son and I see wildlife that, like us, are drawn by the fish: otters, mink, bald eagles, great blue herons, and belted kingfishers. On several ponds, we've seen how ospreys learn to drop from the sky to seize dazed trout fresh from release. There are also painted turtles and no end to the waterfowl. Lively goldeneyes dance and whistle in the spring, omnipresent mallards rear their broods in summer, and colorful bands of wood ducks stage at the ponds for their early fall migrations.

Lessons and solace

We watch people, too, many as colorful and entertaining as the wildlife. Like the little girl in the pink tutu we sometimes see speeding laps around Pine Grove Pond on her BMX bicycle. Or the teenagers in small clusters or romantic pairs looking for a bit of privacy.

Another pond constituency is people like me: self-taught fly-casters who seem perpetually stuck in the novice stage. Yes, we could practice at the city park, but why not hone our casting (and hook-sets) with live targets?

Then there's another type: the Anony-

mous Hero. One breezy fall day at Pine Grove Pond, Aidan watched as I fruitlessly flailed away with my fly rod. An older fellow came by and offered to let us share his rig—a nice spinning outfit with a quarter-ounce copper Cyclone spoon on 4-pound-test line.

"You can cover a lot of water with this, even with a headwind," Mr. Anonymous Hero said.

He and Aidan began reeling in and releasing one slab rainbow after another, while I spent my time repeatedly unhooking my fly from the willows.

After an hour, the stranger tipped his hat, gave the rod and reel to Aidan as a gift, and walked off. Aidan watched him go, looking like the kid at the end of *Shane*. We've been hauling in trout with that outfit ever since.

So generosity can be taught at these diminutive waters. There are other lessons, too, such as responsibility. Like taking one fish home but leaving the rest for other kids. Or the importance of picking up your trash, dramatically demonstrated one afternoon by a hen mallard frantically trying to escape from a tangle of discarded monofilament. We waded in and snipped the bird free and have been diligent about collecting litter ever since.

Recently, there came the sad day when I had to tell Aidan that his grandfather—with whom we had fished these ponds—had died. I took Aidan out of school early and decided to break the bitter news at our local pond.

Thinking later about why I was drawn to that spot, it occurs to me that those places I've hunted and fished have always been places of solace. They are places that continue to make sense when the rest of the world makes none. If a father can pass that on to a son, it seems one of the more worthy lessons of fatherhood.

Maybe Thoreau was right. Maybe it's not just fish we're after, after all. 🐟

Find

a nearby family fishing pond

On the FWP website, search for "family fishing sites." For each of the 64 waters, you'll find the species, sizes, and numbers of fish FWP has stocked there, and when stocking occurred. Each water includes a site map, fishing pressure information, regulations, any fish consumption advisories, contact information, and more.

State agencies, cities, counties, civic groups, or other community-based organizations wanting to create or enhance local fishing ponds can apply for an FWP grant. Typical enhancements include fishing piers, educational signs, pond construction or deepening, fish habitat, and aerators that prevent winterkill. To learn more, call or e-mail your nearest FWP regional office or the grant program administrator, Michelle McGree, at (406) 444-2432; MMcGree@mt.gov.

DECEPTIVELY DANGEROUS

Low-head dams don't seem hazardous—until you're trapped underwater beneath one.

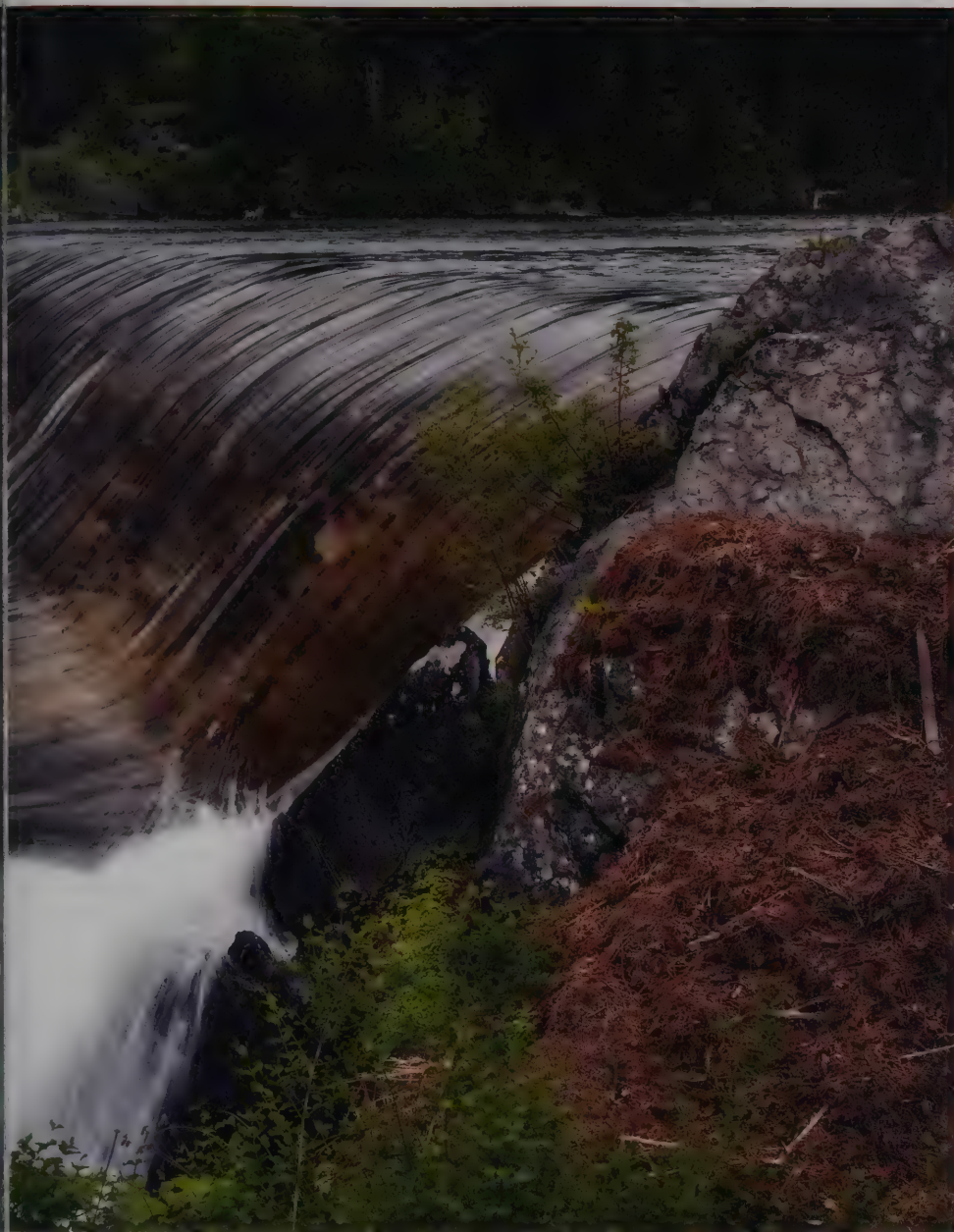
BY NICK GEVOCK

FOR YEARS, MARK BUTLER AND OTHER members of Ravalli County Search and Rescue were regularly summoned to save people in danger of drowning in the turbulent water created by the Supply Ditch Headgate Diversion Dam on the Bitterroot River. So Butler wasn't surprised in the summer of 2013 when he was alerted that several people were caught in the dangerous undertow below the concrete structure.

But that call was particularly disturbing. A six-year-old girl from Washington State was among those swept into the river when her father's boat went over the dam and capsized. When first responders arrived, everyone who had been trapped below the dam had made it to shore. But the girl was unconscious and had to be transported by rescue helicopter to St. Patrick Hospital in Missoula. She didn't survive. ►►



The tragedy was one of several accidents that year at the dam, located two miles downstream from the Woodside Bridge Fishing Access Site between Hamilton and Stevensville. Two weeks after the drowning, Mark Maier of Lolo and his two sons were sucked into the dam's turbulent waters. They spent more than half an hour trapped in the Bitterroot before being rescued. "I have never been so scared in my life," Maier, a strong swimmer who did two infantry tours in the Middle East, told the *Missoulian*. Brent and Charise Jackson of Victor, both experienced floaters, told a reporter that they and their four girls barely escaped tragedy when their raft flipped at the dam in early June. "The [submerged] raft was rocking and the kids were scream-



FATAL FLOW Low-head dams are built mainly to divert water into irrigation systems. The structures create powerful hydraulic forces. Even strong swimmers wearing a personal flotation device can be trapped underwater.



ing,” Charise said. “I told the kids to stop screaming and start praying.” Finally, the raft righted itself and the parents were able to get the children back on board and continue rowing down the river.

In 2017, the conservation district that owns the dam completed a \$500,000 project to make it safer for floaters. “It’s definitely safer, yes. But no diversion dam is ever completely safe,” says Randy Arnold, Montana Fish, Wildlife & Parks regional supervisor in Missoula.

These incidents highlight the deceptive dangers posed by “low-head” dams—structures that by all appearances seem no more hazardous than a small rapids. The combination of powerful hydraulics, water that looks relatively easy to run, and locations on

popular rafting rivers makes the structures especially hazardous, especially during high water runoff. Though fatalities are not common—FWP officials say fewer than a dozen people have drowned at low-head dams in Montana in the past half century—many boaters or swimmers have been trapped and narrowly escaped tragedy.

DROWNING MACHINES

Low-head, or diversion, dams are usually small structures three to ten feet high that extend across an entire stream channel. They have no gates or water-control devices; water flows constantly over the top. The dams impound water above the structure that is then pumped into sprinklers or diverted into canals to irrigate pastures and crops.

Because they are small, low-head dams seem innocuous. “One of the biggest problems is that, from upstream, they don’t look dangerous at all,” says Chris Clancy, recently retired FWP fisheries biologist in Hamilton. “The water is calm and it looks like you can easily float right over. But you can’t see what’s over the drop, and you definitely can’t see the danger below the surface.”

Because the dam “head”—the distance between the water surface upstream and that downstream—is so low, the water above and below the structure appears shallow. But in spring and other periods of high flow, the impounded water upstream can be 10 to 15 feet deep. When all that water volume goes over the top of the dam, it gains speed and plunges straight down with enormous force. That energy creates an underwater vortex that kayakers and canoeists call a “hydraulic.”

In rapids, people thrown from a boat are often quickly washed downstream out of danger. But below a low-head dam, the hydraulic creates a powerful back current that pushes the victim upstream against the dam. Those two forces—from above and from downstream—hold victims underwater until they become exhausted and

drown. Even if victims rise back to the surface, the hydraulic force sucks them under water again and again. Even powerful, experienced adult swimmers wearing life vests lack the strength to fight the water.

Adding to the danger are logs and other debris trapped in the vortex, and the frothy, aerated water that survivors say make it impossible, when submerged, to tell which way is up. “It’s like being trapped in a giant washing machine,” says Phil Kilbreath, boating law administrator with FWP’s Enforcement Division. “You can’t see the powerful hydraulics below that can suck a person under and hold them there.”

Water safety officials call low-head dams “drowning machines.”

According to the Association of State Dam Safety Officials, drownings at low-head dams nationwide have drastically increased in the past two decades as more and more people use rivers for recreation. Most people who drown at low-head dams are males ages 11 to 20.

Many diversion dams have been in place for decades. Veteran floaters are accustomed to the structures on their favorite river stretches and most portage around them. Some highly experienced (or reckless) floaters determinedly run low-head dams, but at significant risk.

Of the 11 boating-related fatalities in Montana in 2018, many of the causes are unknown, Kilbreath says. “One thing we do know is that wearing a life jacket, or personal flotation device, is the best way to increase your odds of surviving any type of boating-related accident.”

RIVER CHANGES COURSE

The lower Yellowstone River holds several large low-head diversion dams, including those at Intake, Huntley, and Cartersville. All are dangerous to floaters, especially in high water. Potentially dangerous diversion dams are also on the Sun, Musselshell, and Milk Rivers.

The Bitterroot has several low-head dams. What’s more, the river carves out new channels each year after high water, sending bankside trees toppling into the

water. Submerged trees, known as sweepers or strainers, can capsize rafts, canoes, and kayaks and trap occupants underwater (see “Strainers’ can be deadly,” page 35). ”

Supply Ditch Headgate Diversion Dam, where the 2013 drowning occurred, spans an eastern channel of the Bitterroot. Experienced floaters have long known it was there, says Clancy, the retired biologist. But for years the main river flowed through a western channel, away from the dam. In 2011, high water caused that stretch of the Bitterroot to shift, sending the main river through the eastern channel. That sent floaters and anglers over the dam.

After several boats swamped, FWP posted warning signs at the three fishing access sites upstream. “We also posted a sign on the river about 200 yards upstream of the dam informing floaters to portage around it,” Clancy says. Though the signs were in place when the accidents occurred in 2013, some boaters said they did

not see them or were unable to get their craft to the bank in time.

Clancy says floaters should consider stopping at a local fly shop or sporting goods store before floating any river to learn about new hazards.

“It’s like being trapped in a giant washing machine. You can’t see the powerful hydraulics below that can suck a person under and hold them there.”

NO GUARANTEE

Low-head dams also present a dilemma for FWP. Department officials have long insisted that people are responsible for their own safety when taking to the outdoors—and that includes floating rivers, which are inherently

Deceptive Drowning Machine

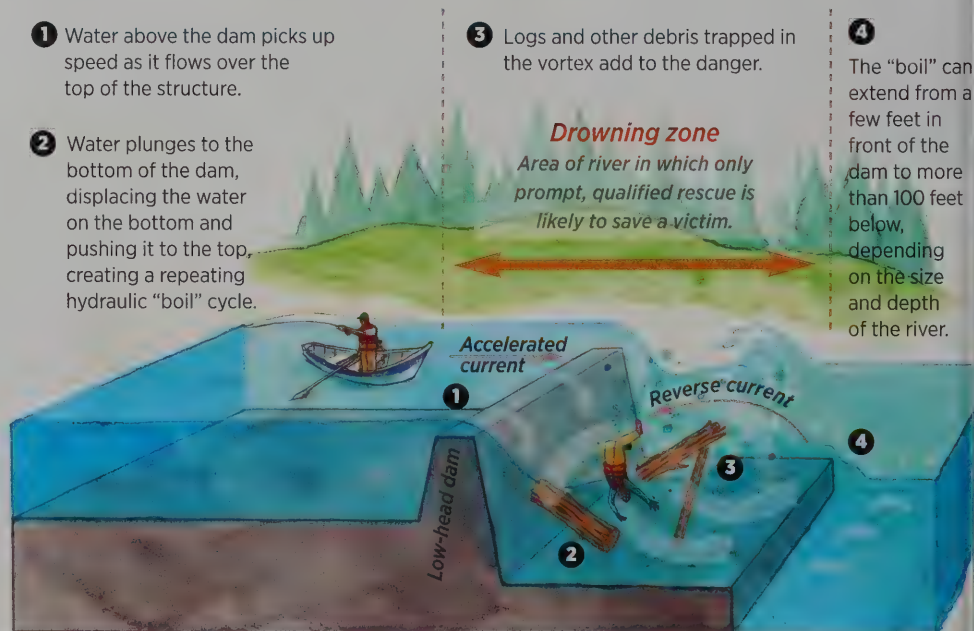


ILLUSTRATION BY STEVE STANKIEWICZ

TRAPPED Low-head dams don’t appear dangerous. Because the structure is hidden underwater, boaters, kayakers, and other floaters can’t judge how deep the water is above and below the dam—or how fast it moves over the top. Also hidden is the deadly hydraulic, caused by the large volume of water flowing over the structure. Victims are usually trapped between the two current forces.

Nick Gevock is conservation director for the Montana Wildlife Federation.

dangerous. In addition to the hazards of low-head dams and submerged trees, runoff from mountain snow and heavy rain in late spring and early summer causes river flows to double or triple in a few hours, turning a gentle float into a harrowing experience. "It's not possible for FWP—any government agency—to warn people about every hazard on a river," says Arnold, the FWP regional supervisor. "If you don't know what you're doing, the results can be tragic." It's also worth noting that low-head dams are private property managed by local irrigation districts and licensed by the Department of Natural Resources and Conservation (DNRC).

However, Arnold says, unlike runoff and sweepers, low-head dams are permanent, man-made structures that have been on rivers for decades. Many are notorious for causing boating accidents. FWP has begun to work with dam owners and the DNRC to identify the most dangerous structures and post warnings to prevent future tragedies.

Just because a diversion dam has no signage doesn't mean there is no danger. "A lack of warning is no guarantee of safety," says Sara Smith, FWP boating education coordinator. "People still need to learn where low-head dams are and how best to get around them."

According to FWP officials, the best approach for people considering a float down any river is to learn as much as possible about potential hazards well ahead of time. Floaters can buy river maps that show the location of many low-head dams. Online stream flow reports maintained by the U.S. Geological Service show if river levels are dangerously high. "Consider any dam to be dangerous and heed warning signs wherever they are posted," Smith says.

Smith adds that anyone who plans to float a river should buy or borrow a water-proof cell phone or case that attaches to the body. "That way, if you capsize you have your life line on your person and can get help as soon as possible—if there's cell coverage," she says.

Perhaps the safest approach is to always portage around every dam—no matter the size and how safe it might look. As anyone who has survived being held underwater below a low-head dam can attest, appearances can be deceiving. 🐾



The dangers posed by big dams

Large hydroelectric dams are hazardous both above and below the structures. Above dams, boats can be swept into intake areas and spillways. Below, a sudden discharge of water from spillways and turbines can rapidly increase river flows. Protect yourself when recreating on or along a river near a hydroelectric facility by following these safety tips:

- ▶ Always obey warning signs near dams.
- ▶ Never cross boater safety cables. These devices designate areas where boats should not operate, such as near intake areas, dams, and spillways.
- ▶ Never anchor your boat directly below a dam. Sudden discharges of water can rapidly increase river flows.
- ▶ Be alert for debris, river obstructions, and partially submerged objects.
- ▶ If caught in rising water, get out on the nearest bank and move to high ground.

"Strainers" can be deadly

Though they produce great hiding habitat for fish, log jams and submerged timber, known as strainers or sweepers, are some of the most dangerous threats to Montana boaters and floaters.

Because water flows through logjams and downed trees, boats can be sucked into the woody debris, and the boaters are then tossed overboard and can become trapped underwater amid the tangle of branches and trunks.

"Almost all of the 16 people who have drowned in the Bitter-root during the past 20 years I've been with Ravalli County Search and Rescue were killed directly or indirectly due to strainers," says Mark Butler, of Corvallis.





EXCEEDING EXPECTATIONS

While not offering much for Montana's dispirited CRP fans, the 2018 Farm Bill's other land and water conservation programs will provide tens of millions of dollars to help farmers, ranchers, wildlife, and public recreational access in the state's prairie region.

By Catherine Wightman

Commonly known as the Farm Bill, the Agriculture Improvement Act is one of the most powerful pieces of legislation affecting Montana's farmers, ranchers, and rural communities.

Wildlife, too.

In fact, no other legislation has more potential to help or hurt wildlife populations in the state's central and eastern regions than the Farm Bill, which Congress reauthorizes every five years or so.

The nation's first Farm Bill, passed in 1933 as part of the New Deal, was Congress's response to the economic and environmental

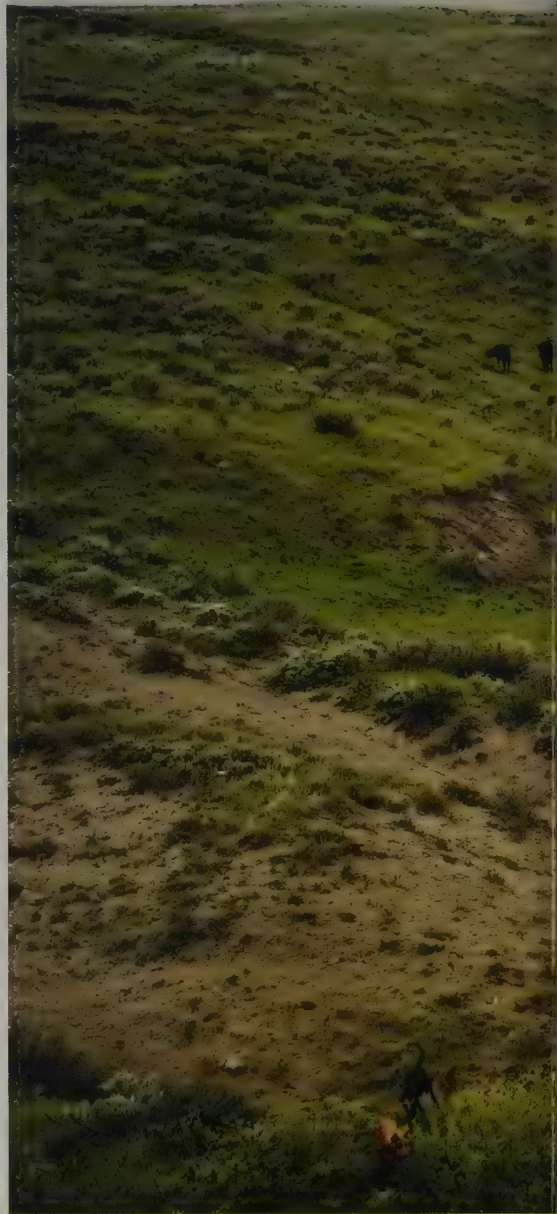
crises of the Great Depression and the Dust Bowl. Then as now, the goals of the Farm Bill are to maintain fair food prices and adequate food supplies while conserving natural resources. Over the years, a growing number of Farm Bill programs have improved water quality, protected wetlands, and enhanced wildlife habitat.

Each Farm Bill must balance economic, political, and other priorities. As a result, some components end up harming wildlife habitat and populations, while other programs, including several in the 2018 bill, are beneficial. "Overall, this is a great Farm Bill,"

Bob Sanders, Montana Conservation Program manager for Duck's Unlimited (DU), says of the \$876 billion bill, authorized by Congress in December 2018.

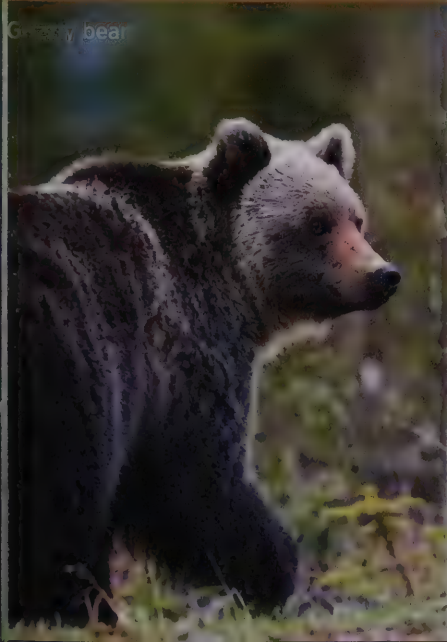
Earlier drafts of the bill threatened to slash conservation by \$1 billion, Sanders says. But DU and other conservation groups fought back in the final negotiations and pressured Congress to restore and even boost conservation programs.

Here's how several of the 2018 Farm Bill's dizzying alphabet soup of programs shake out for Montana's wildlife populations and habitat:



OFF ALONG Ranch hands and dogs drive cattle on the J Bar L Ranch through a healthy sagebrush-studded landscape in the Centennial Valley. The 2018 Farm Bill includes programs that help ranchers and farmers conserve sagebrush habitat and protect prairie streams.

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► **Agricultural Conservation Easement Program (ACEP)**

"We were told not to get our hopes up," says Glenn Marx, executive director of the Montana Association of Land Trusts, about ACEP funding in the 2018 Farm Bill. "But we made our case to Congress, based on 2014 Farm Bill successes, and the funding ended up far exceeding our expectations."

Though the program's name highlights "agriculture," ACEP focuses just as much on improving wildlife and water quality.

The 2018 Farm Bill appropriates \$450 million per year for the program, which pro-

vides technical and financial assistance to help landowners protect and restore agricultural lands and wetlands.

ALE is a provision of ACEP in which the federal Natural Resources Conservation Service (NRCS) cost-shares on conservation easements held by land trusts. (As any reader can tell, the Farm Bill is packed with acronyms.) Under the 2014 Farm Bill, Montana led the nation in acres conserved using Agricultural Land Easement (ALE) funding. In fact, one of every three acres conserved nationally was in Montana, according to the NRCS. Montana landowners, land trusts,

and the NRCS together enrolled 191,575 acres on 56 parcels in ACEP-ALE between 2014 and 2018.

"Montana's enrollments are a remarkable accomplishment," says Marx. "Farms and ranches will be maintained as farms and ranches in perpetuity, highly erodible soils will be conserved, grasslands and sagebrush and sage-grouse habitat will be maintained, and many multigenerational farms and ranches will stay multigenerational. ALE is a great example of a federal program producing tangible results."

ALE-funded conservation easements

held by FWP also increase acreage for public recreational access. “The combination of conservation and access is a fantastic package,” Marx says.

While applauding the increased funding, Marx notes that changes in the 2018 Farm Bill will increase national competition for those dollars. “The ALE program will be open to more landowners, more land trusts, and more states,” he says. “We’ll have our work cut out for us obtaining full funding for our 2019 applications.”

Wetland Reserve Easement (WRE), another provision of ACEP, provides funding for wetland restoration and conservation easements held by the NRCS. While similar to its predecessor, the Wetland Reserve Program (WRP), WRE has additional flexibility, such as a grazing rights option, making it more attractive to Montana’s farmers and ranchers. “The old WRP basically took land

and put it in a glass jar on a shelf,” DU’s Sanders says. “WRE puts wetland conservation in a working lands context. That means more landowners will apply, which should mean more wetland acres protected in Montana and other states.”

► **Conservation Reserve Program (CRP)**

Prairie wildlife love large tracts of grass. And grass and forbs (flowering plants) is what the Conservation Reserve Program (CRP) has produced since it was established in 1985. Aimed at stabilizing soil, improving water quality, and maintaining wildlife habitat, the program pays farmers to take highly erodible cropland out of production and plant it with grasses and forbs. Pheasants in particular thrive with increased CRP acreage, as do waterfowl, songbirds, white-tailed and mule deer, and other prairie wildlife.

The 2018 Farm Bill offered good news for CRP, increasing the enrollment cap nationwide from its current 22 million acres to

27 million acres by 2023.

That modest increase could at least help stem the decline of Montana’s CRP acreage. Over the past decade, Montana has seen its CRP acres drop by nearly 70 percent as Congress shifted funding away from the northern Great Plains to the lower Midwest, South, and Eastern Seaboard states. Montana’s CRP acreage declined from a high of nearly 3.5 million acres in 2007 to just 1.1 million acres today.

Meanwhile, Montana’s upland bird numbers have tumbled. Hampered by several years of poor weather for nesting and brood rearing, the 2018 pheasant population was the lowest in decades. Hunters in recent years also report fewer sharp-tailed grouse. Upland bird experts say the loss of CRP lands is making it more challenging for populations to recover.

“Considering the importance of CRP for upland game birds, we wish the increase had been greater than it was,” says Al Eiden, western regional director for Pheasants Forever.

Catherine Wightman is FWP’s wildlife habitat and federal Farm Bill coordinator.



FLUSH WITH HABITAT Though the new Farm Bill won’t help Montana fully recover the 2.4 million acres of CRP grasses lost over the past decade, it does boost the program’s acreage nationwide by nearly 25 percent. Several other programs also offer incentives for landowners to protect upland bird habitat.

"That being said, we did make progress, and the gains in CRP will do a lot for upland birds in Montana and elsewhere."

► **Environmental Quality Incentives Program (EQIP)**

EQIP provides money and technical help for farmers and ranchers to carry out land and water conservation practices. The 2018 Farm Bill authorized roughly \$2 billion for EQIP per year. The bill also directs NRCS to use at least 20 percent of that on projects that benefit wildlife, up from 10 percent in the previous Farm Bill. This means a good portion of EQIP federal dollars will be directed toward maintaining and enhancing quality habitat in Montana with activities such as managed grazing, riparian (stream-side) restoration, and grassland reseeding.

Tom Watson, Montana's NRCS state conservationist, says he's committed to working with local farmers and ranchers to ensure that EQIP funding is used to target the highest priority resource needs, including wildlife habitat enhancement.

► **Voluntary Public Access and Habitat Incentive Program (VPA-HIP)**

VPA-HIP is a competitive federal grant program that helps state and tribal governments expand voluntary public access to private lands for hunting, fishing, and other recreational activities. FWP successfully competed for VPA-HIP funding in the 2014 Farm Bill, which allowed additional enrollments under the department's Open Fields Program. "Open Fields provides walk-in access with no further permission required to hunt upland game birds on privately owned CRP lands," says Debbie Hohler, FWP Upland Game Bird Enhancement Program coordinator. "Landowners like not having to take access calls, and hunters like knowing they have permission ahead of time."

FWP has expanded bird hunting and other recreational access on over 48,000 acres of privately owned wildlife habitat by combining VPA-HIP and state Upland Game Bird Enhancement Program funding.

The 2018 Farm Bill increases VPA-HIP mandatory funding from \$40 million to \$50 million nationwide, providing more opportunities for FWP and Montana's Native American tribes to compete with other states



KEEPING THE "WET" IN WETLANDS Several Farm Bill programs provide landowners with financial incentives to protect wetlands, which benefit wildlife and improve water quality.

and tribes for the federal funds. Farmers and ranchers with active CRP contracts may enroll their lands in Open Fields for a one-time payment. Coupled with potential increases in CRP enrollment, "the new Farm Bill provides an opportunity for another successful round of Open Fields," says Hohler.

► **Regional Conservation Partnership Program (RCPP)**

RCPP is another conservation program carried over from the 2014 Farm Bill. It provides financial assistance to local partnerships (composed of nonprofit organizations; local, state, and tribal governments; private companies; universities; and others) built around shared conservation priorities. Since 2014, five RCPP awards totaling over \$8 million have been made to Montana's partners. Project priorities include saline seep restoration, drought resilience, agricultural sustainability, and working lands maintenance.

"RCPP has also been deployed with great success in Montana," says Marx, with the land trust group. "For example, the Gallatin Valley Land Trust is bundling NRCS programs under

RCPP and fostering broad partnerships to conserve land in a highly developing landscape in the greater Bozeman region."

Ducks Unlimited also received an RCPP grant that allowed it to leverage other funds to total more than \$1 million for targeted conservation work on Montana's Hi-Line. The grant allows partners to direct NRCS program funding specifically to areas most important for waterfowl, declining grassland bird species, and other top priority wildlife. "The work is not just about ducks," says Sanders. "We're also supporting grass-based agriculture, farmers, ranchers, and local communities."

It's called the Farm Bill for a reason. The federal legislation's main focus is on farmlands, ranchlands, and agricultural communities. But increasingly the Farm Bill is showing that conservation measures that help farmers and ranchers can also help grassland wildlife. "When you conserve grass and water, everyone wins," says Sanders. 🐾

To learn more about 2018 Farm Bill programs, contact Catherine Wightman at cwightman@mt.gov or (406) 444-3377.

Their pain, and mine

BY TOM DICKSON

One summer morning a few years ago, I walked past the pond by my office and noticed something struggling in the water. It was a baby house sparrow that must have fallen from a nest. It was obvious that, without help, it would soon drown. Still, it was just a sparrow, and I started to walk away. But then I surprised myself by turning around, kicking off my shoes, and wading into the chest-deep water to save the chick. I was too late.

I put the lifeless form on the bank, then sat down on the grass, soaking wet, to consider what I'd just done. I'm no fan of house sparrows, invasive species that crowd out native songbirds. And you wouldn't think someone like me, who blasts pheasants, grouse, and ducks out of the sky each hunting season, would care about the death of a single baby sparrow.

In fact, I'm generally undisturbed by an animal's death, if it happens "humanely" (a word that I recognize is open to wide interpretation). A deer or elk dropped with one shot. A cow that happily grazes a Montana pasture all summer then is dispatched by a bolt gun. How could someone who eats meat, game or domestic, feel otherwise?

Yet I wince at even the thought of an animal feeling pain or terror. It's a paradox, I know.

I'm not the only hunter who feels this way. My FWP colleague Laurie Wolf told me of a fellow who brought an injured owl to the FWP Wildlife Rehabilitation Center. He'd been hunting elk deep in the backcountry when he came upon a small owl flopping around on the forest floor. It was emaciated and obviously blind in one eye. For whatever reason, the hunter couldn't just leave it there. He threw his jacket over the bird so he could carry it back to the trailhead, then drove to Helena. He walked into the center, handed over the owl, and said, "Here, do what you guys do," then left without another word.

Some of my favorite YouTube videos

Tom Dickson is editor of Montana Outdoors.



show people rescuing wildlife. Often it's one or two hunters who find a coyote tangled in barbed wire, or a deer caught in a fence, or a moose that has broken through an iced-over pond. Their rescue attempts are nerve-racking to watch. The animals could bite or kick, causing severe injuries. Despite the danger, the rescuers seem unable to walk away and leave the animals to suffer.

Most hunters I know would likely do the same. They certainly take pains not to leave the game animals they hunt wounded and struggling. They commit to making a single killing shot, which requires patience and discipline. Sometimes that means not shooting at all, even after a long day (or days) afield. And when they don't make a lethal kill, they track the wounded animal, sometimes for hours or even days, to put it out of its misery (and, yes, to recover the meat or antlers).

It's true that some hunters—though not many, in my experience—seem indifferent to the pain of animals. They'll announce they "stuck" a deer or elk over the weekend with an ill-placed arrow. Or they might shoot at a Canada goose or tundra swan overhead that's too far away to be killed (though not injured). Each year, FWP game wardens report instances of hunters "flock shooting"—firing

into an elk herd in the hopes of killing some (and usually wounding others in the process).

I confess I too have wounded wildlife. I've never shot a big game animal without killing it. But each year, despite my best efforts to shoot accurately, I "rock" a passing duck or flushing rooster then watch it fly off, a half-dozen steel pellets imbedded in its belly or back.

Those injuries, which add up over the years, increasingly haunt me. I could stop hunting, of course, but the pleasure it affords still outweighs the moments of guilt.

In *Witness of Combines*, a collection of essays on rural life, author Kent Meyers writes, "...if you wound an animal, you become responsible for its pain." I carry those words with me every time I hunt.

Perhaps it was a sense of responsibility that drew me to that struggling baby sparrow. By trying to alleviate one bird's suffering, maybe I hoped to make amends for all the birds I've injured, and thereby start to heal the small but growing number of wounds inside me. 🐾

Sturgeon chub

Macrhybopsis gelida

By Niall Clancy

A few summers ago while working as a Montana Fish, Wildlife & Parks fisheries technician, I accompanied a biologist up the Powder River, a tributary of the Yellowstone River in southeastern Montana not far from Miles City. We were using radio telemetry to locate a pallid sturgeon tagged by FWP several years earlier.

Though we didn't locate the sturgeon, the trip was notable because it was the first time I had seen so much of the Powder River. True to its name, the Powder is naturally laden with fine sediment—a smooth chocolate ribbon running through the prairie. It's also a major stronghold of one of Montana's least-known fish, the sturgeon chub.

IDENTIFICATION

Although named for its fleeting resemblance to the much larger members of the sturgeon family, the sturgeon chub is actually a member of the minnow family. A relative of daces and shiners, it can be distinguished from these and other small forage fishes by its slender body and long snout, which overhangs its horizontal mouth. Averaging two to three inches long, the species can be differentiated from the similar looking long-nose dace by its noticeably lighter coloration and tiny barbels at both corners of its mouth.

Sturgeon chubs are bottom dwellers, typically found in shallow areas of large, slow-flowing rivers. Unlike the sicklefin chub, another closely related species, the sturgeon chub prefers areas with exposed gravel and swift current—a type of habitat uncommon in sluggish, muddy streams and rivers.

Niall Clancy is a writer in Hamilton.

FEEDING

Finding prey in the murky waters of the Powder River is difficult for many fish species, especially sight feeders like smallmouth bass. But the sturgeon chub is well adapted to life in limited visibility. The fish's entire underbelly is covered in small sense organs. It uses these to "taste" the stream bottom, picking out small aquatic insects such as midge larvae. Biologists consider the sturgeon chub one of the best "tasters" in the animal kingdom.



DISTRIBUTION AND CONSERVATION STATUS

Due to their small size and scarcity, sturgeon chubs are difficult to capture. Little is known about the species' movement or spawning behavior.

What biologists do know is that the sturgeon chub's historic range included 13 states from Montana and North Dakota south to Arkansas and Tennessee. In Montana, it was found in the main stems and larger tributaries

SCIENTIFIC NAME
Macrhybopsis is Greek for "long, rounded face," and *gelida* is Latin for "frozen" or "stiff," perhaps referring to an original collected specimen.

of the state's Missouri and Yellowstone Rivers. "The first Montana specimens were taken by the Railroad Survey (1853-1855) somewhere in the Milk River," writes C. J. D. Brown in *Fishes of Montana*.

The statewide range has since shrunk by 50 percent due to river alterations from dams, channelization (straightening stretches and removing pools and spawning gravel), and other development that degrades or eliminates habitat. In Montana today, sturgeon chubs are found primarily in the main stems of the Missouri, Yellowstone, and Powder Rivers.

Though conservationists petitioned for its listing under the Endangered Species Act, further study determined that the sturgeon chub was not at significant risk of extinction. Still, due to extensive habitat loss, Montana and nine other states consider the sturgeon chub a "species of special concern." Because predicted lower stream flows from climate change will likely make life harder for the sturgeon chub, FWP biologists are monitoring populations to gather information that will help conserve this unique prairie fish. 🐟

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